THE AMERICAN REVIEW

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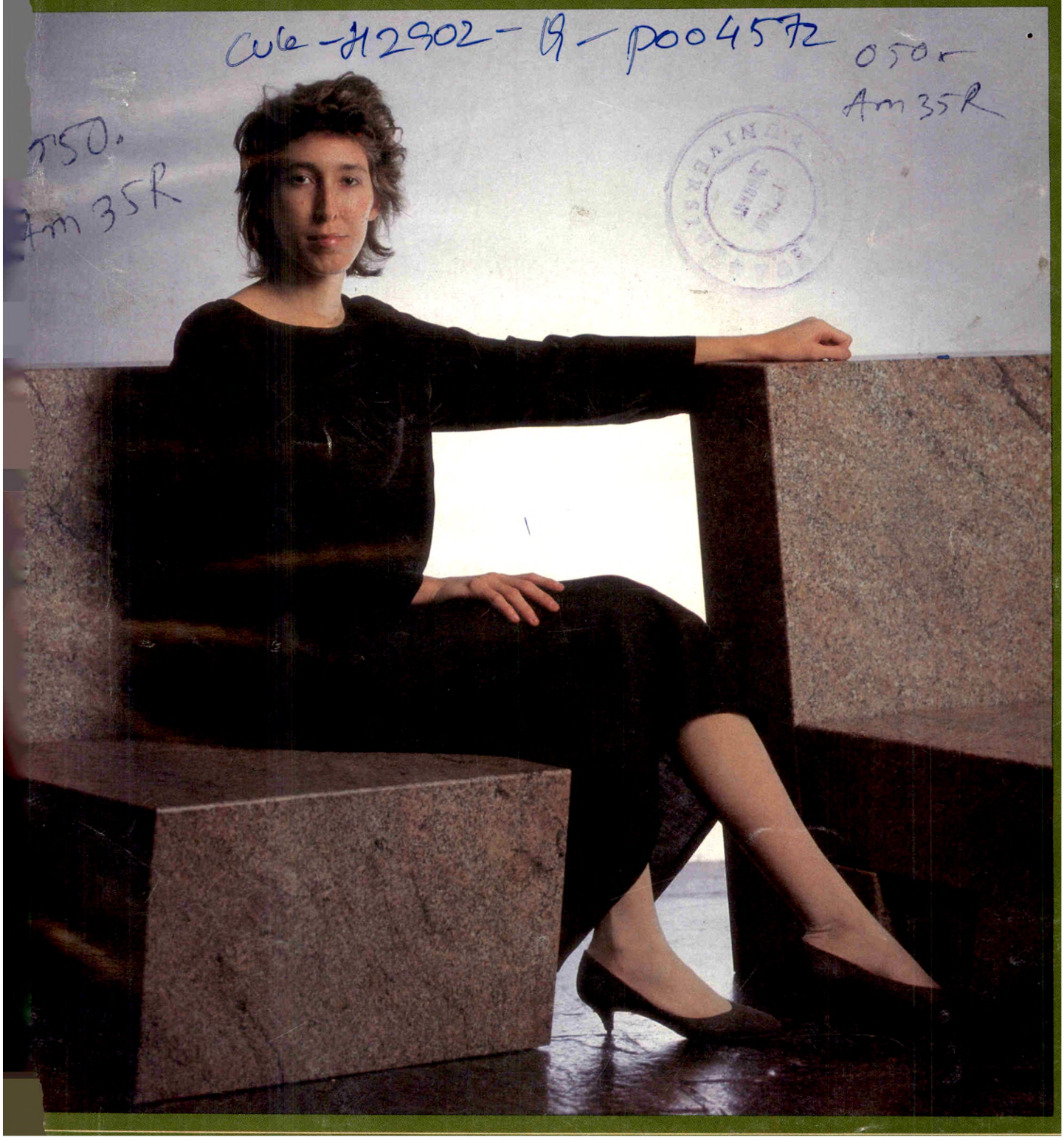

COVER: Lisa Phillips, curator of 20th-century American design exhibit at the Whitney Museum (see page 8). Photograph by Timothy Greenfield-Sanders © 1986.

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THE AMERICAN REVIEW IS A QUARTERLY JOURNAL REFLECTING IN WORDS AND IMAGES CURRENT INTELLECTUAL AND CULTURAL INTERESTS IN THE UNITED STATES. THE OPINIONS EXPRESSED ARE THOSE OF THE AUTHORS AND DO NOT NECESSARILY REFLECT THE VIEWS OR POLICIES OF THE U.S. GOVERNMENT.

TABLE OF CONTENTS

P4572

ROBOTS IN THE WORKPLACE

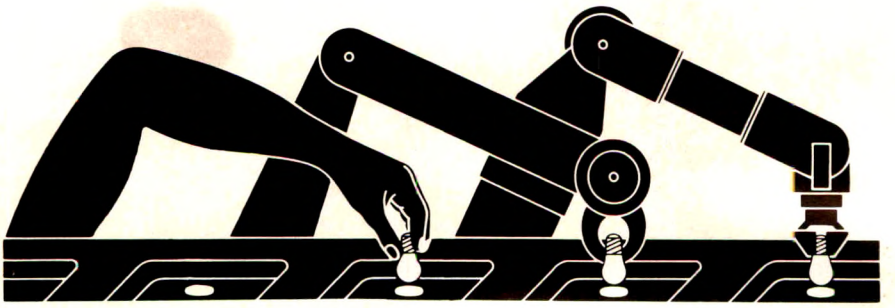


Illustration by Terry Graves

By Roger Draper
From THE NEW YORK REVIEW OF BOOKS

Industrial robots developed during the 1980s are making possible major technological advances in U.S. manufacturing. The number of robots has doubled over the past three years, but even more significant is the fact that some industries are increasingly using sophisticated robots in the production process. In the following essay, Roger Draper, a past editor of Electronics *magazine, examines these developments and speculates on how they will affect the economy and workers in the future. The only certainty, he notes, is that "history provides no true parallels for the advent of robots."*

During the 1960s, researchers at a company now called SRI International built a mobile robot. "Shakey," a wheel-driven cart that carried a television camera and a radio link to a separate minicomputer, was designed to move in response to programmed commands. When he received instructions to go from one point in a room to another, for example, the camera would form images of the robot's immediate vicinity. Like printed photographs, such images consisted of dots representing the presence or absence of light. This arrangement of dots was fed into the minicomputer, which "digitized" it—that is, transformed it into a sequence of ones and zeros. A computer program for recognizing visual patterns compared the new sequence with others stored in the computer's memory. If the computer found a match, it "understood" the robot's position in relation to surrounding objects. This information could then be used by other programs devised to solve simple problems.

At first Shakey was merely told to push boxes about a room. In 1971 a second, more advanced version of the robot was placed near three other objects: a tall platform, a box lying directly upon it and a ramp a meter away. Shakey was then ordered to knock the

box off the platform, but at first he failed even to reach it. Next, however, he nudged the ramp over to the platform, scampered up the one and onto the other, and coolly pushed the box to the floor. In effect he had "figured out" that the ramp was a means to his end.

Shakey was slow—he spent an hour or so identifying the block and the ramp. His world consisted entirely of large, smooth boxes and clean, smooth walls; anything else literally blew his mind. Unlike most robots, which include mechanical arms that can manipulate objects with some degree of skill, Shakey could only move from place to place. Yet in a sense he could "see," and in a sense he could "think." Most industrial robots can do neither.

They don't have to. Much of what goes on in a factory involves picking things up, moving them and putting them down. Almost all work of this kind can already be done by robots, though in most cases human labor is cheaper. We cannot be quite sure how long human beings will continue to enjoy that advantage. But we do know who will be most affected when they lose it: the welders, painters, machinists and toolmakers, machine operators, inspectors and industrial assemblers of society.

Unlike the steam engine, the spinning mule and the power loom, robots were conceived long before they were invented. Yet the writers and inventors of the past had in mind what today would be considered an automaton, a mechanical "self-moving machine" like Pierre Jaquet-Droz's "mechanical scribe" (1774), a precursor of the humanoids that have been so much on the public mind since the movie *Star Wars*. It was to this kind of automaton that Karel Capek applied the Czech word *robota* (work) in his 1920 play *R.U.R.*

Engineer Joseph Engelberger was the man who decided that robots should be something else. Late in 1956, at a party, he ran into George Devol, another engineer who had earlier hit on the basic idea of using computer components to control a mechanical arm. Devol had invented what he called a "programmed article-transfer device." Engelberger was impressed by Devol's idea and persuaded his employers to try it out. He had another name in mind, however. "The word is *robot*," Engelberger said, "and it should be robot. I was building a robot, damn it, and I wasn't going to have any fun...unless it was a robot."

During the summer of 1956, 10 other researchers, including Marvin Minsky, one of the earliest experts on artificial intelligence, had met at Dartmouth College in New Hampshire to speculate on the future of thinking machines. Among other things, they predicted that within a single generation humanity would no longer have to work. Engelberger soon launched his own company with himself as chief executive. The business, currently called Unimation Incorporated, did not show a profit until 1975.

In 1961 Unimation marketed its first commercial robots, the famous "Unimates." These were mechanical arms that carried out instructions that were lodged in a computer's memory; the operator could change the instructions quite easily by changing the programs that recorded them. In the United States, only such "programmable" robots are regarded as the genuine article. Japan's much broader definition includes many less sophisticated devices and therefore permits that country to claim that it has more robots than the rest of the world combined. It does not, though it does in fact lead the world.

General Motors, Unimation's earliest and largest customer, used its first robots for die casting, the nasty work of pouring molten metal into steel dies and removing the red-hot auto part. The technique usually involves relatively small production lots, or "batches," as opposed to mass production, on the one hand, and the manufacture of individual items, on the other. Companies that turn out unique products one by one, in the manner of a Stradivarius, generally find robotics pointless because it may be necessary to write a new program for each item. Mass production—the production of millions of identical copies of a single part or group of parts—usually justifies traditional "hard" automation: machines specifically designed to perform one task, and that only. Such machines are usually more expensive at the outset than robots, but since they are faster and better suited to the task at hand, their eventual cost is lower if it can be spread over a larger volume. It is goods produced in batches—representing three-quarters of manufacturing's contribution to the U.S. gross national product—that are particularly suited to robotics, for their low volumes rarely justify the higher initial costs of hard automation.

At $40,000 to $100,000 apiece, the earliest robots were costly themselves. Average operating expenses of $6 an hour made them hardly cheaper than a human being. Yet they were sometimes economical, for programs could easily be written to handle new batches and then called up as needed. Besides, they could work round-the-clock without malingering, going to the toilet or blowing their noses, and were therefore more productive than any human worker, and one man or woman could often supervise several robots. The increase in output per hour was potentially enormous.

Nonetheless, robots were too expensive and exotic for most purposes. During the late 1950s Del Harder, the Ford Motor Company's manufacturing chief, looked at Engelberger's specifications for a robot and said, "We could use 2000 of them tomorrow." But he did not order 2000 Unimates, and no more than 30 had been sold by 1964. The pace was slow because only the car companies, which regarded themselves as leaders in the field of automation and also had unusually high wage bills, would experiment. Outside the automobile industry, the very existence of robots was something of a secret.

By the mid-1960s it was clear that the Dartmouth predictions of 1956 had been exaggerated. Neither robots nor computers in general were about to produce an age of universal leisure. Unhappily, this truth begot a new, more dangerous myth: the idea that since the advent of the computer had coincided with rising levels of employment, it had in some sense

caused them as well. That fallacy in turn gave rise to the popular notion that new technologies by nature create more jobs than they eliminate. In fact, robotics had on balance created no jobs at all, and never will, although this seemingly obvious point was and still is concealed by mystification. During the 1960s the number of jobs rose steadily for reasons that had nothing to do with computers and robots, which in any case were very rare by current standards.

Unlike Shakey, the earliest robots could neither sense changes in their surroundings nor respond to them. Those surroundings therefore had to be controlled with a precision that was unattainable or uneconomic in most industrial processes. To become more useful, robots needed something at least distantly comparable to human senses.

They got it, but slowly, for this turned out to be one of the deepest problems in artificial intelligence, far harder than getting computers to play chess or prove mathematical theorems. Those subjects are simple enough to be reduced to rules. Our general knowledge of the world—"common sense"—is much more elusive and complex. When we see, for example, how do we decide where an object stops and another object begins? Why do we see the buttons on a shirt as, in a sense, a part of it and, in another sense, as distinct objects? The answers to such questions are hardly clear.

Despite our ignorance of the fundamentals, we can build devices that partially simulate human senses and permit robots to cope with unexpected change; Shakey, for example, could "see" his way through a room, though only a very simple room with very simple objects. Not all applications really benefit from such abilities. Robots that merely have to move from point to point on a sheet of metal, make a weld and go on to the next point—spot welding, the most important single application in robotics—do not need senses. If, however, the weld must be continuous, as in arc welding, the robot must be able to "see" its way along the surface.

So far, computer senses fall very short of our own. A human being can generate vastly more sensory information than any robotics system can and process it about a thousand times faster—all this in a small, attractive package that moves under its own power and reproduces itself. The deficiencies of present-day machine vision are typified by the so-called bin-picking problem: getting a robot to pick out a particular item from a bin packed with various kinds of hardware. Although systems designed at the University of Rhode Island, among other places, have actually done so, they are neither fast nor reliable, because today's computers lack sufficient speed and memory. When a solution emerges, almost every industrial operation will be susceptible to robotics, and researchers tell us that the end is within sight.

Of course, predictions of this sort have been made before. Yet there is a difference. Little research on artificial intelligence had been done in 1956, so the extravagant claims made at Dartmouth reflected nearly complete ignorance. The predictions of 1985 reflect a quarter century of research into artificial intelligence and experience with products that incorporate it. The most fundamental problems of artificial intelligence—teaching computers to understand "natural" languages, such as English, for example—are probably nowhere near to solution. A robot that can make breakfast may be 20 or so years distant. Yet the day when robots will be capable of manufacturing almost all significant industrial products is not far off. The remaining uncertainties will be economic, for in some cases a robot will continue to be more expensive than a human worker even if the two can perform a task equally well.

In 1970, the United States, then the undisputed world leader in the design, production, export and use of robots, had about 200 of them installed in its factories. The entire world had only a few times as many. Throughout the decade the absolute numbers continued to be almost contemptibly small. The rate of increase was very high, however, and it is no coincidence that between 1970 and 1980 GM's wage bill soared by 240 percent while the cost of operating a robot stabilized at $5 or $6 an hour.

Perhaps 40 percent of the 8000 or so robots in the United States by 1982 had been installed in automobile plants. Foundries, many of them owned by auto companies, came next, with about 20 percent of all robots, followed by light manufacturing (notably of plastics, food, drugs and cosmetics), the electronics industry and the aerospace industry. Virtually all robots in use at that time were "first-generation" models, which lacked sensory input but nonetheless helped the automobile manufacturers expand their total output by 15 percent between 1980 and 1983. In the same period their production work force fell by 4000. Spot welding, which occupies 35 to 45 percent of all robots installed in the United States, was and is the commonest application.

As of 1985 there are some 16,000 industrial robots in the United States. The auto business owns from 7000 to 8000 of them, just under half of all units in the United States. Its share is larger today than in 1982. GM, for example, used 300 robots in 1980, has about 5000 now, and plans to buy an additional 15,000 or more by 1990. According to estimates by Wassily Leontief and Faye Duchin in their new book, *The Future Impact of Automation on Workers*, other industries that make metal parts and machines "will vastly increase" the number of robots they use to change tools and handle materials. Light manufacturing is buying many more robots as well.

The most significant new developments are taking place in the electronics industry, where robots are now widely used to assemble finished goods. About 90 percent of Apple's Macintosh computer, for example, is assembled automatically—in part by equipment purchased from IBM. This astonishing feat is of deep importance. Welding and painting occur in many industries, but the assembling of machines and other products is much more widespread, and it accounts for the largest single share

Robotics like the steam engine and electricity is destined to be part of an industrial revolution—it will fuse design, manufacture and marketing into a single stream of information that will permit us to automate just about anything we do not want to do ourselves.

of industrial workers and manufacturing costs. The experts agree that by the middle of the next decade it will be the most important application in robotics. In the meantime, assembly already occupies nearly 20 percent of the robots in Japan, where some electronics manufacturers claim that they have automated one-half to three-quarters of their assembly operations.

It will take time for robotic assembly to become widely diffused. Leontief and Duchin suggest that even by the year 2000 the "electronic revolution" as a whole may "be no more advanced than the mechanization of European economies" was in the year 1820, when it had hardly begun to spread from mines and cotton factories. But whatever may be happening at any particular moment, robotics, like the steam engine and electricity, is destined to be part of an industrial revolution. This third industrial revolution will fuse design, manufacture and marketing into a single stream of information that will eventually permit us to automate just about anything we do not want to do ourselves.

We are nowhere near that point, but a few companies are moving to implement what they call "computer-integrated manufacturing." For example, the salespeople of McDonnell Douglas Corporation, an aircraft manufacturer, can send an order for a part directly to a computer-aided design system. This dispenses with the services of the old-fashioned draftsman by permitting the engineer who develops the part to make a freehand sketch on a cathode-ray tube linked to a computer that automatically transforms it into an electronic blueprint which can be revised endlessly. If the part can be turned out on numerical-control machines—computer-controlled machine tools similar, in essence, to robots—a system designed by the company itself can take the finished drawing and automatically write a program to make the part. (Thanks to this system and others like it, the demand for programmers may not rise dramatically, by the way.) Then, of course, the item is made—automatically.

Meanwhile other computers at McDonnell Douglas concurrently update the inventory, keep sales records and the like, while upper management has instant access to whatever information it wants. The need constantly to enter and re-enter the same data—at the point of sale, in the engineering department, the drafting department, the production department, the inventory control department, the billing department, the accounting department and so forth—is largely eliminated. At present, the most advanced of these systems are very prone to break down, and only about a dozen have been installed successfully. Yet managers and design engineers regard computer-integrated manufacturing as a sort of ideal, and some of them will undoubtedly continue to pursue it.

This quest for the factory of the future—the fully automated factory—is the subject of Harley Shaiken's important new book, *Work Transformed: Automation and Labor in the Computer Age*. Shaiken, a former machinist, is currently a research associate in MIT's Program in Science, Technology and Society. On the one hand, he says, the "engineers, mesmerized by high technology, veer off toward complex systems as a challenge rather than holding to simpler, more effective approaches" to automation. On the other, management seeks "to bypass human input at almost any price," hoping to dispense with the annoyances of dealing with human workers; it therefore favors delicate, disaster-prone systems of "breathtaking complexity." The Caterpillar Tractor Company, for instance, bought one of the earliest integrated manufacturing systems in 1971 and then had to spend four years getting it to work at all; for several years thereafter it was out of order 60 to 80 percent of the time. Such disasters suggest to Shaiken that extreme complexity is not a matter of economic or technical rationality "but of power and political choice."

Less politically committed experts agree with Shaiken that excess complexity constantly bedevils efforts to implement computer-integrated manufacturing. Meanwhile, less advanced arrangements, like those used on Wall Street to feed customer orders to programs that automatically send out invoices and compile statistical reports, are keeping down the number of computer keyboard operators and giving top executives immediate access to knowledge of what is being produced and how.

Until recently, this sort of knowledge was controlled by middle management—the people actually running factories and offices, many of whom collect information, analyze it and make decisions about it. In the future some of these decisions will be made at corporate headquarters, and some by "expert systems," artificial-intelligence programs that reduce bodies of knowledge to a set of rules and apply them. The jobs of executive assistants, financial analysts, production and inventory controllers, and researchers will be particularly threatened.

They will not be alone. In Shaiken's words the one great truth of the matter is that "unlike other technologies...which increase the productivity of a worker, the robot actually *replaces* [italics in original] the worker." Not long ago the tomato growers of California hired 40,000 migrant workers a year to pick their crop. Then they started using a robot called the Tomato Harvester, and by the start of the 1980s they required only about 8000 laborers to pick a crop three times as large. This was a fairly difficult application, too, for the modern commercial tomato, though hard, is less hard than most of the objects that robots manipulate, and tomatoes in general tend to be irregular in shape and to grow at unpredictable locations on the vine.

These are exceptionally dramatic results. The case of General Motors has greater importance, first, because it is more typical and, second, because GM bought the earliest robots and probably knows more about using this technology than anyone else in the United States. The mainly first-generation robots it was buying at the start of the 1980s on average eliminated 1.7 jobs—and 2.7 jobs in plants that functioned round-the-clock—figures that include all new positions created by robotics. In 1981 the company declared its intention of purchasing 20,000 additional robots over the coming decade so, according to Shaiken, more than "40,000 workers could be displaced at GM by this technology alone." For the most part, they will be yielding their places to first-generation robots, which can perform only a limited number of industrial operations and displace many fewer workers than their second-generation counterparts.

Researchers in Michigan estimate that by 1990 the United States will have lost 100,000 to 200,000 manufacturing positions to robotics. This may not seem a terribly high figure for a period of 30 years until you consider that these jobs will be lost mostly in the automobile industry and mostly to first-generation robots performing traditional applications, like welding and painting. The fact that second-generation robots can be used in assembly means that future losses will not be confined to a few industries, as they are at present.

Studies like this one, however, prove nothing decisively, if only because some of them fail to distinguish between what is technically possible, on the one hand, and what is economically rational, on the other. General Electric, for instance, estimated in 1981 that robots could take over half the 37,000 jobs in its appliance division, but it later insisted that many of them could still be performed more cheaply by human beings. The truth is that specific predictions about the spread of robotics are speculative, perhaps wildly speculative. Yet the general conditions, technical and economic, that will shape the market are fairly clear.

First, robots will cease to be concentrated largely in the automobile industry. The use of second-generation robots in assembly is only part of the explanation for this. No less important is the fact that we now have a generation of practical experience with robotics. Back in the early 1960s, each company that bought a robot had to devise its own production techniques and train its own experts, at enormous trouble and cost. Failure was quite common, much as it is today in attempts to implement computer-integrated manufacturing. Only large and rich corporations that already had a lot of automation know-how would take the chance, and as we know, they were mainly in the car business. These early applications created a base of knowledge that cut the risk of failure and made it possible for additional industries to use first-generation robots. Within 10 years, companies that wish to install second-generation robots will be able to draw on a comparable body of knowledge, which will make it much easier to set up robotized assembly systems than it is today.

Second, the resistance to the spread of robotics will come from corporate accounting departments, not displaced workers. Financial officers typically demand that every investment break even quickly. Often, the required payback period, formulated years ago under the influence of the older kind of automated equipment, which must be scrapped with every change in products, is just too short for robotics. The same robot can make a variety of products and may therefore be useful through any number of product switches. When the advantage becomes clear, the accountants will probably reconcile themselves to a longer payback period. They are already under pressure to do so.

Third, the accountants will reconcile themselves to robotics even if they cling to their present unrealistically stringent standards. For as the volume of robots being produced rises, and robots themselves come to be produced by robots, their cost will go on rising more slowly than the cost of the labor they replace—about three times more slowly during the 1980s, according to GM, whose chairman, Roger Smith, claims that each one-dollar-an-hour pay increase makes it profitable for the company to install 1000 additional robots.

Finally, robotics may become essential in the finicky and rapidly changing markets emerging in most consumer industries, since preparing a robot to make a new product is often just a matter of changing one floppy disk or cassette tape for another. At this point robots will be hard to resist.

Many aspects of robotics are surely debatable, but not the identity of its principal victims: the industrial working class and those who will be trying to join it in 20 to 30 years. Most of its present members may well avoid permanent joblessness, for companies that install robots usually attempt to reabsorb their employees. But whatever may happen to them, even the optimists implicitly expect this sort of employment to be well on its way to extinction in a generation or so.

The optimists, however, remind us that overall levels of employment will not fall if robotics creates more jobs than it displaces, or if new service jobs come into existence for other reasons, or if the size of the work force declines sufficiently. Unfortunately, none of these conditions will be satisfied. The size of the U.S. work force is expected to increase, not decline, through the year 2000. The service industries—transformed by centralized data-processing systems, word processors, electronic scanners, computer-aided design equipment, expert systems and the like—may in future employ fewer Americans even if their share of the economy continues to expand, as it no doubt will. In fact, Leontief and Duchin, who suggest that three-quarters of a million managers and five million clerical workers may find themselves technologically unemployed by 1990, fear the impact of office automation much more than they fear robotics.

There remains the hope that robots themselves will create a substantial amount of employment, perhaps more than they eliminate. Isaac Asimov, who in 1942 coined the term *robotics*, insists that "history makes it plain that advancing technology is, in the long run, a job creator and not a job destroyer." But history provides no true parallels to the advent of robotics, and thus no true grounds for comfort.

In reality, the engineers and science-fiction writers who currently monopolize knowledge of robotics want to have fun building robots. They do not regard the consequences of their ingenuity as their responsibility, and this attitude promotes a certain detachment: one British study actually asks, "If it is unseemly for a civilisation to be founded on slavery, is it not also unseemly for a civilisation to be founded on work which is so far below the abilities of those who perform it?" It would be easier to take such questions seriously were those who posed them threatened by redundancy.

Organized labor, as Shaiken rightly notes, resembles other American institutions in assuming that robotics is "inevitable in any case," so relatively few attempts have been made to control automation through negotiation. Nor is that likely to change, for the unions know very well that robotics is not the sole threat to their membership: moving production to low-wage Third World countries is often cheaper and easier.

"Direct action" against automation has been no more successful than collective bargaining. In 1975, for instance, the printers' union struck *The Washington Post*, which had installed automatic presses; 10 of them were vandalized, and the strike petered out soon thereafter. This state of affairs reflects passivity, not intelligent acceptance of the future.

The optimists insist that middle-class work will continue to be available. But by the early decades of the 21st century, as industrial labor is disappearing, the kind of middle-class employment that consists chiefly of gathering information and making routine decisions will be under pressure as well. Who knows what new kinds of work might emerge? If artificial-intelligence enthusiasts like Marvin Minsky are correct, the very concept of work will be economically meaningless within a couple of generations. In any event you do not have to be an enthusiast to see that the number of middle-class positions is not going to rise sufficiently to accommodate the workless class, if it rises at all.

Artificial intelligence, moreover, is quite real. Not in a generation, and perhaps not in two—but not in the impossibly distant future, either—most kinds of work we now do will indeed be economically meaningless. If few of us had skills that anyone cared to hire, our economy would on the face of it support neither consumption nor production—not without major changes, at any rate. We might have to rethink our most fundamental institutions, not because we had any desire to do so, but because those institutions had been overtaken by events. ♦

20TH CENTURY AMERICAN DESIGN

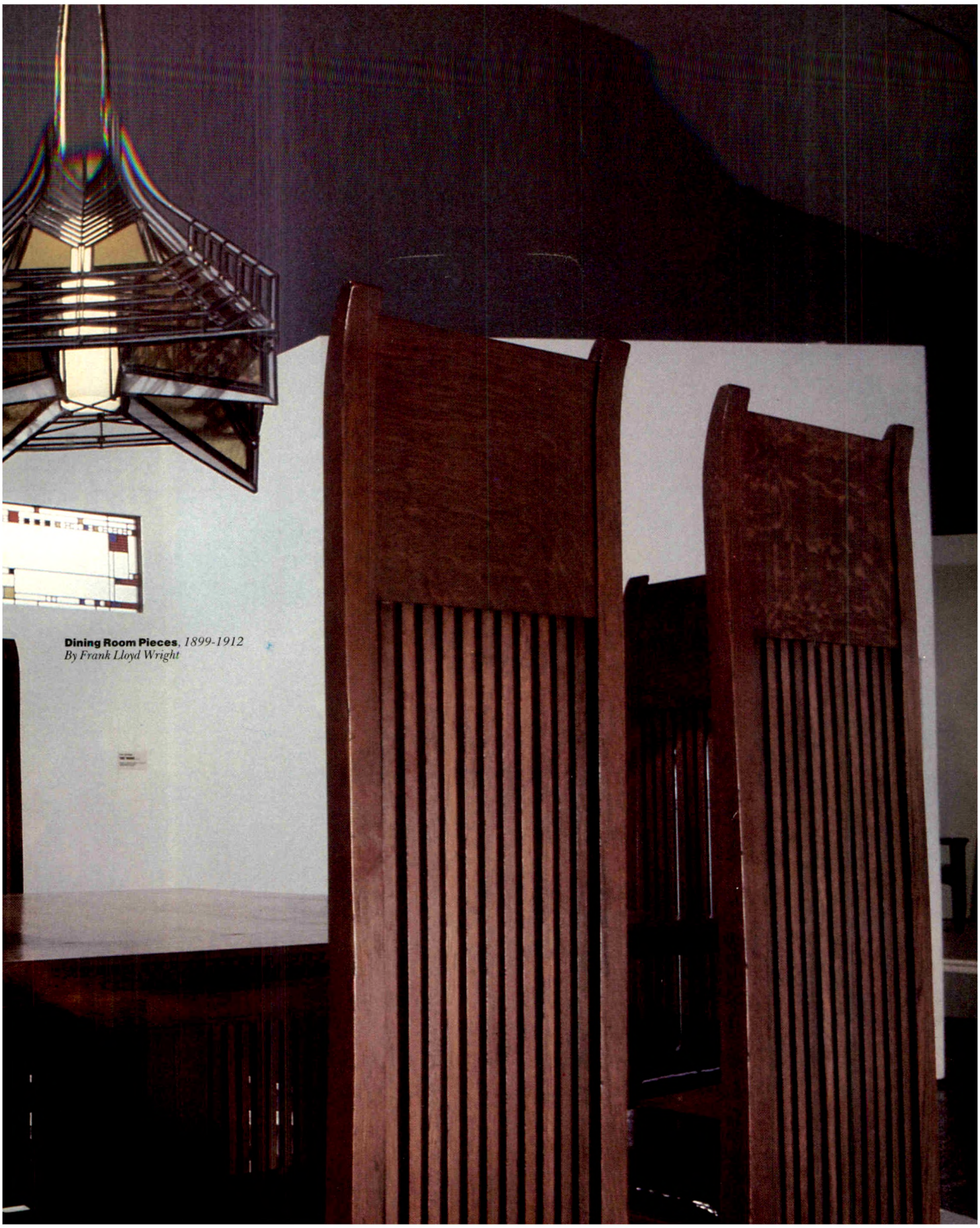
The recent exhibition at New York's Whitney Museum of American Art, "High Styles: 20th-Century American Design," traces the history and influence of American culture on the decorative arts and industrial design. This wide-ranging survey brings together some 300 objects—both mass-produced and handmade—which were created between 1900 and 1985 by leading artists, architects and industrial designers. The assembled furniture, appliances, craftworks, tableware, textiles and graphics provide ample evidence that, as *New York Times* architectural critic Paul Goldberger asserts, the U.S. "design tradition is a healthy pluralist one." In addition, these pieces "point up a critical theme of American design, which is a kind of tension between the somewhat self-conscious, 'designed' object and the more common one....The common, everyday object gives insight into mass tastes; the more special one, far from being merely elitist, says much about deeper cultural values, about the strivings of a period that have not yet been expressed in every household." The exhibition does not stress a

Fireplace Surround, *1901*
By George Washington Maher
for the Patrick J. King house, Chicago
Glass mosaic and gold enamel
Private collection

Easy Edges High Chair, *1972*
By Frank Gehry
Corrugated cardboard and pressed fiber
Collection of Joan and Jack Quinn

single theory of design. Six curators selected pieces to represent the different historical periods. All the curators, however, shared certain assumptions, according to project coordinator Lisa Phillips: "that there exists an independent, inherently American design ethic which is more than a mere transplantation or adaptation of European influences; that the forms of American design express the society from which they emerge; and that there is a vital interrelationship among the fields of domestic architecture, industrial design and the decorative arts." The six curators are: historian David A. Hanks; David Gebhard, professor of architectural history at the University of California, Santa Barbara; Rosemarie Haag Bletter, professor at New York University's Institute of Fine Arts; architectural historian Esther McCoy; Martin Filler, an editor of *House & Garden* magazine, and Whitney Museum curator Phillips.

"The history of 20th-century design in America," Phillips writes, "is above all a record of a culture founded on agrarian principles but rapidly taking the reach in a technological world. Not only is there a conflict between a growing urban sophistication and the retention of old rural values, but also an ambivalence about the drive toward change and modernity and the need to create continuity through the preservation of tradition. Consequently, the popularity of 'period' furniture—and the attitude that the present should be expressed through the past—is a persistent theme in American design."



Dining Room Pieces, *1899-1912*
By Frank Lloyd Wright

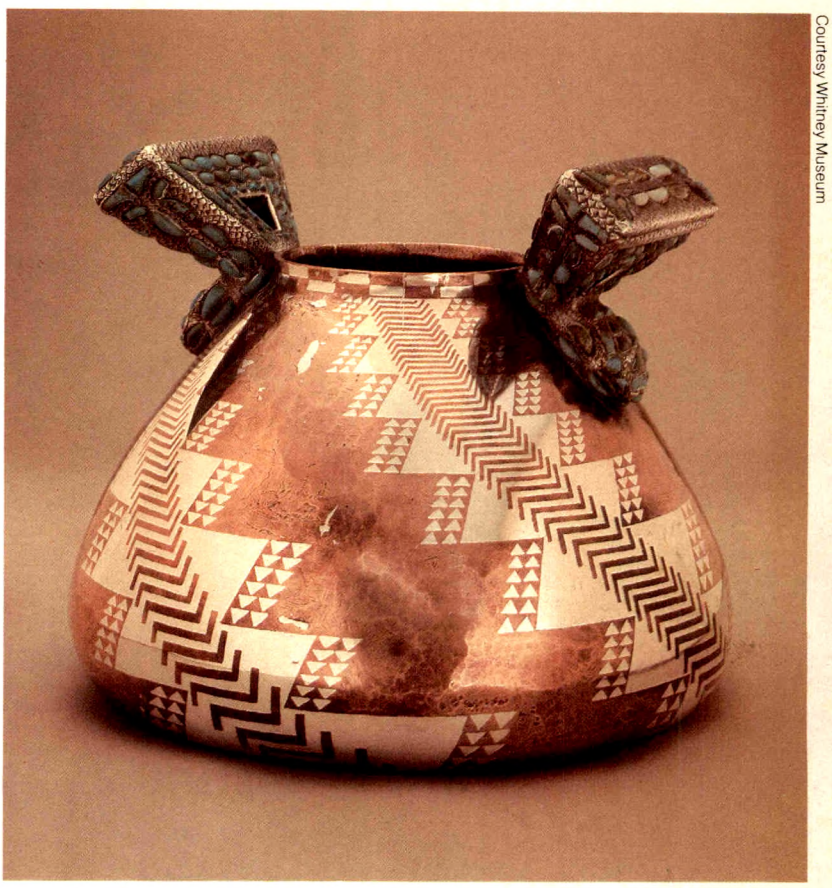
1900-1915

Tradition and Reform

In the years between 1900 and World War I, the historical or "period" styles popular during the Victorian era persisted, while a variety of reform movements arose in reaction to them. Newly wealthy patrons, such as the Whitney and Vanderbilt families, decorated their large townhouses and country estates with sumptuous, eclectic antiques, both originals and reproductions. At the same time, the early years of the century saw such disparate reformist design schemes as Gustav Stickley's somber, fumed-oak furnishings.

As in the 19th century, European innovations clearly affected American design. The curves of French art nouveau found their most influential American advocate in Louis Comfort Tiffany; the heavier curvilinear forms of the German jugendstil were also taken up here. But most American designers modified these imported motifs to suit the preferences of American consumers. The more radical European tendencies were rejected, while traditional indigenous designs, from colonial to American Indian, found new expression. Wallace Nutting, one of the major proponents of the colonial revival, manufactured furniture reproductions, often based on his collection of 17th- and 18th-century originals.

The most important reform in design has its roots in the English Arts and Crafts Movement, which had centers coast to coast, from Gustav Stickley's workshop near Syracuse, New York, to the architects Charles and Henry Greene in California. The Arts and Crafts Movement—in America and England—promoted truth to materials, simplicity of design and the visual integration of architecture with interiors and furnishings. □ *David A. Hanks*



Courtesy Whitney Museum

© 1985 Mark C. Darley

Vase, *c. 1900*
By Tiffany and Company, New York
Silver, copper and turquoise
Virginia Carroll Crawford Collection
The High Museum of Art, Atlanta

Armchair, *c. 1903*
By Henry B. Herts and Hugh Tallant
For the New Amsterdam Theatre, New York
Oak, upholstered in leather
Collection of Glenn L. Johnson

Fall-Front Desk *with detail (opposite), c. 1903*
By Harvey Ellis for Craftsman Workshops of Gustav Stickley, Eastwood, New York
Oak, with inlays of various woods, copper and pewter
Collection of Beth and David Cathers
Courtesy of the Jordan-Volpe Gallery, New York

1915-1930

Traditionalism and Design

The substance of high-style American design in the late teens and '20s is revealed by three words used over and again in advertisements and magazine articles: *charm*, *romance* and *atmosphere*. But these terms, for all their prevalence, were not applied indiscriminately: they were reserved for traditionalist period design. For the purchasing public, the task of vanguard design—and architecture—through the years 1915-30 was to clothe all that was modern and up-to-date, from cars to phonographs to furniture, in the historicizing imagery of various domestic and European period styles.

The American commitment to the automobile and the ideal of the suburban house, each of which depended on the other, are touchstones for an understanding of design in these years. The automobile (and other machines) epitomized the future, while a romanticized past was captured by the suburban home, its garden and its furnishings. Both were expected to incorporate the latest technology and materials and to be practical and useful. But they were also designed to serve a larger purpose: the nostalgic preservation of traditional forms. □ *David Gebhard*

Courtesy Whitney Museum

Phonograph, *c. 1925*
Cabinet decorated by Wilson & Beckwith Studios, Grand Rapids, Michigan
Wood and leather
Grand Rapids Public Museum, Michigan

Adjustable Table, *1927-31*
By Donald Deskey
Brushed nickel base, Bakelite top
Collection of Geoffrey N. Bradfield

Rocking Chair, *c. 1920*
By Amish designer, Pennsylvania
Hickory and oak
Private collection

© 1986 Seth Joel

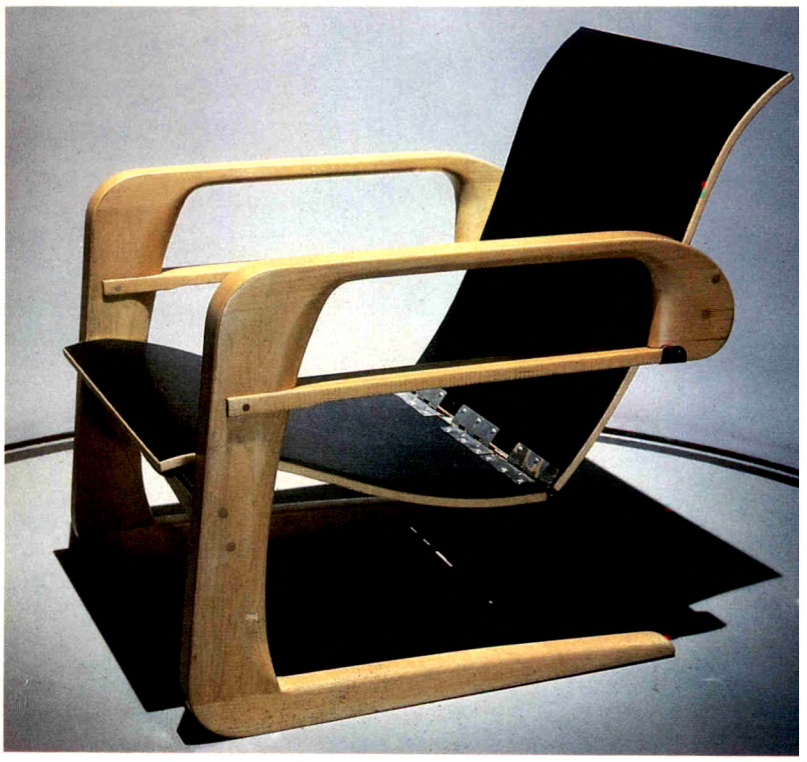
1930-1945

The World of Tomorrow

The period from the onset of the Depression through the end of World War II was marked by hardship and a simultaneous optimism about an improved future. Industry, it was widely believed, would lead the way out of the doldrums, and the '30s saw the rise of the industrial designer. It was he who provided a futuristic image for products that were difficult to sell in a depressed economy. As the Depression worsened, the precious elegance of art deco, introduced in the late '20s, began to seem frivolous. Designers turned to a streamlined look that suggested progress through industry, and evoked machine imagery instead of 18th-century salons. Streamlined toasters did not necessarily perform better, but an up-to-date styling seemed like a down payment on a better tomorrow.

Although streamlining was by no means invented in the United States, its commercialization by industrial designers—many of whom had backgrounds in advertising art—helped it achieve a deeper popular penetration in America than it had in Europe. With its illusion of progressive modernity, streamlined moderne can be singled out as the most telling style of the '30s.

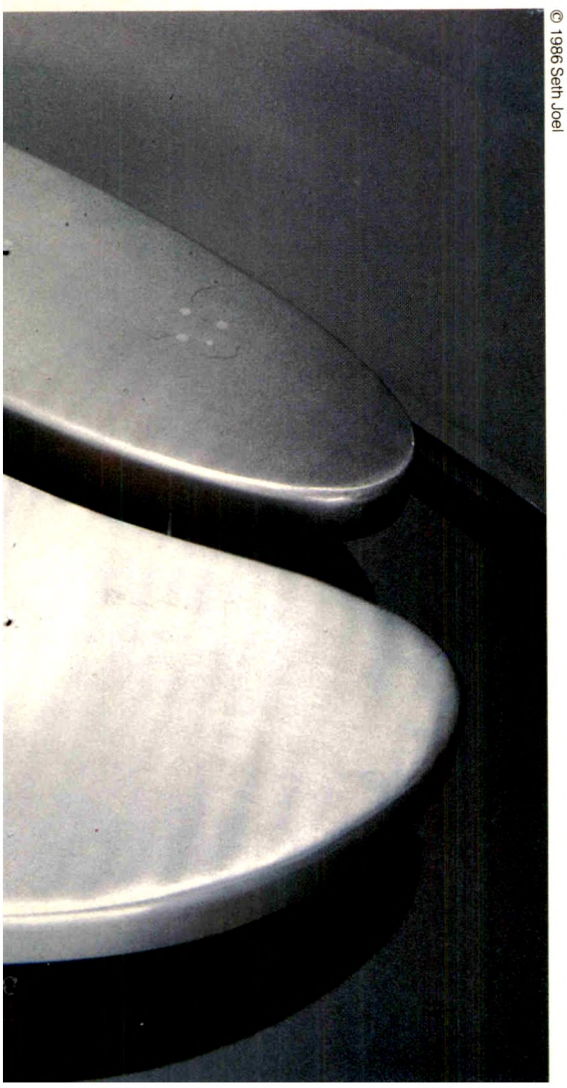
At roughly the same time, however, a group of designers more concerned with art, sculpture and furniture design than with industrial appliances turned to a surrealist-influenced biomorphic style. The designers of this style, which was characterized by soft, sinuous and highly idiosyncratic forms that allude to the curvatures of the human body, rejected the streamlined look. The biomorphic mode was a quiet corrective to the sentimentality and missionary zeal of the machine esthetic and a critique of technology as a metaphor for continuing human progress. □ *Rosemarie Haag Bletter*

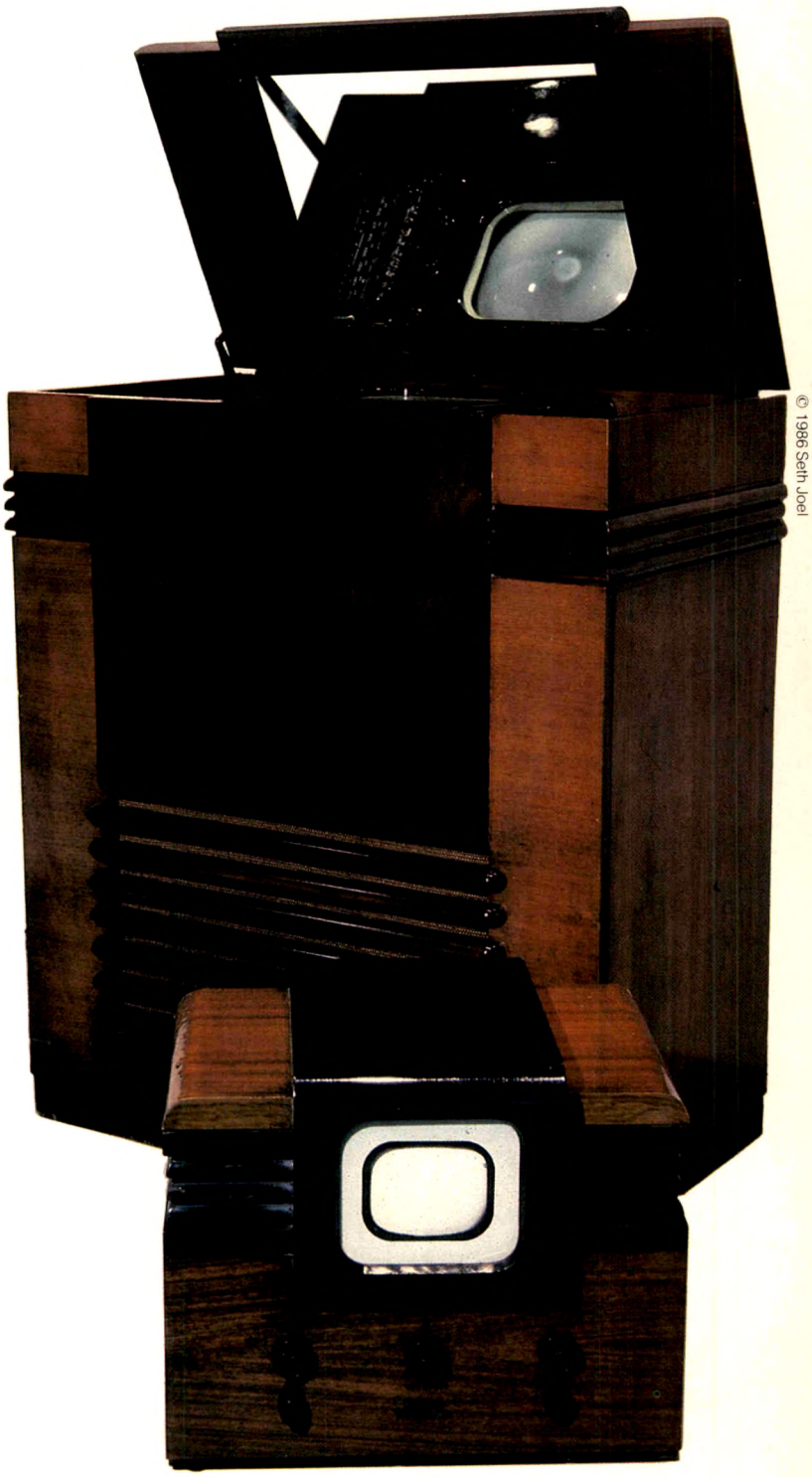


Airline Chair, *1934-35*
By Ken Weber
Wood and naugahyde
University Art Museum
University of California, Santa Barbara
Gift of Erika Weber

Two Nested Coffee Tables, *1938*
By Frederick Kiesler
Cast aluminum
Collection of Mr. and Mrs. I. Donald Grossman

RCA Television Sets, *1938-39*
By John Vassos
Mahogany
Collection of Mr. and Mrs. Jack M. Davis





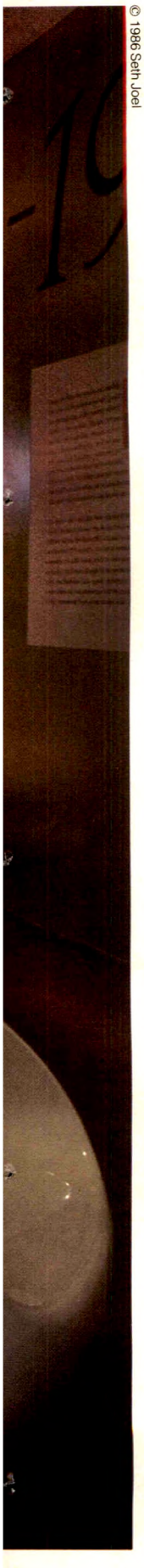
Living Room Furniture, *1943-54*
By Charles Eames and Ray Eames

1945-1960

The Rationalist Period

One of the sharpest breaks with the past in the field of design came at the end of World War II. The Depression of the 1930s had ended as the United States began producing materials for the war effort. Wartime research in engineering, metallurgy, joining (arc welding soon replaced riveting), chemistry (plastics, synthetic resins, new aircraft glues) and new methods of mass production revolutionized furniture design. Furthermore, the postwar population explosion and the exodus from small towns to cities led to an unprecedented amount of building and a reduction in available space. Furniture became lighter and more mobile; built-in, dual-function designs were favored. The formal dining room soon disappeared, bedrooms became smaller, children's rooms were often divided by sliding screens, and in tract houses the master bedroom sometimes opened to the living room by a folding wall.

In the field of furniture, industrial designers' search for prototypes ended with objects which, though now considered elitist, grew out of an American vernacular. The Eames chair, for example, is indebted to industrial machinery—and to the tractor seats of farm equipment. At once spartan and visually rich, this chair has influenced subsequent design in the United States and abroad more than any other piece of furniture. □ *Esther McCoy*



1960-1975

The Interior Landscape

During the 1960s, the complex and contradictory strains of the American psyche suddenly erupted to the surface. Tensions between idealism and pragmatism, altruism and violence, tolerance and bigotry, trust and paranoia, generosity and greed came to the fore of American life with terrifying speed. The widely divergent ways in which makers of useful objects addressed the cultural rift indicated the fragmentation (later termed "pluralism") that characterized American design from 1960 to 1975.

That decade and a half had three clearly definable phases: a modernist coda, "a pop revolution" and a natural reaction—the latter an emphatic expression of a crafts revival which ran throughout the period. The dominant figures of the modernist furniture-design establishment continued to produce works of high quality in the 1960s. But compared to their pioneering efforts of the late '40s and early '50s, their '60s furniture seemed to be as basically reiterative as late International Style office buildings. The pop revolution mocked this orthodox modernism, employing many of its materials and mannerisms in subversive and ironic ways, and making a fetish of the ephemeral. The natural reaction, with its consoling embrace of the organic and the nostalgic, was an understandable response to the rapid stylistic upheavals that preceded it. □ *Martin Filler*

Courtesy Rudolph de Harak

Seating Unit/Planter, *c. 1968*
By Architectural Fiberglass Company
Fiberglass
Krueger, Inc., Green Bay, Wisconsin

Aurora Clock, *1972*
By Rudolph de Harak
Polished aluminum and plastic
Collection of Rudolph de Harak

1975-

Total Style

The most distinctive feature of late-20th-century life is the sheer velocity of change. The concept of measuring ideas and identities by generations is simply no longer applicable. *Postmodernism* has become a catch-all term to characterize the period; it acknowledges that no one style can triumph when information has reached such chaotic and vast proportions. Art has lost its elitist thrust, and artists who once thought they had to be outsiders are now attempting to fight their way back into the mainstream.

One important manifestation of this drive is that an increasing number of artists are applying themselves to the design of functional objects, from chairs and fabrics to teacups and stoves. As artists push sculpture toward furniture and function, seeking a broader context for their work, architects and designers have begun to draw ideas from art. All of these groups have forced a revision of the received attitudes about the relationship between fine and applied arts.

Consumer taste has also changed. As the cult of creativity reaches its zenith, the emphasis is on signature—on designer goods—rather than on usefulness. As a result, widely divergent stylistic tendencies prevail. Some favor quirky surrealist objects, fashioned in materials and forms that often contradict or subvert their function. But there is also a craving for opulent natural materials and the simultaneous display and mixing of historical styles. □ *Lisa Phillips*

Twisted Handle Pillow Pitcher, *1984*
By Betty Woodman
Glazed ceramic
Private collection

Max Lamp, *1983*
By R.M. Fischer
Steel, limestone, brass and electric light
Gallery of Applied Arts, New York

Armchair, *1981*
By Michael Graves
Bird's-eye maple veneer, ebony, mother-of-pearl inlay and upholstery
Hauserman, Inc., and Sunar Hauserman, Inc.
Norwalk, Connecticut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BRUCE SPRINGSTEEN AND NARRATIVE ROCK

By Ann Douglas
From DISSENT

"Rock and roll," long the dominant form of popular music in the United States, evolved during the mid-1950s out of the rhythm-and-blues played by American blacks. The first music created and performed specifically by the young for the young, rock is perhaps best exemplified today by the enormously popular songs of Bruce Springsteen. Springsteen's driving beat and heart-felt lyrics exploring the concerns of working-class youth testify to the power of the music's roots. While Springsteen "is a superstar," Time *critic Jay Cocks has written, "he is also bent on being a populist, marrying the mythic dimensions of major celebrity to the kind of moral and social responsibility seldom found bobbing in the musical mainstream."*

Ann Douglas, of Columbia University's Center for American Cultural Studies, is the author of The Feminization of American Culture. *She is currently at work on a book about Freudian theory and contemporary mass culture.*

In May of 1974, rock critic Jon Landau heard Bruce Springsteen for the first time in concert. In a now famous endorsement, he testified: "I saw my rock-and-roll past flash before my eyes. And...*I saw rock and roll's future and its name is Bruce Springsteen*." In 1973 Springsteen had released two albums, *Greetings from Asbury Park* and *The Wild, the Innocent, and the E-Street Shuffle*, both more widely praised by critics than bought by rock fans; he was at work on what was to be his first big-selling album, *Born to Run* (1975). Could he possibly live up to or, for that matter, live with, such an accolade?

It is typical of Springsteen that neither the raves nor the attacks that inevitably followed Landau's tribute deflected his purpose. *Darkness on the Edge of Town* (1978), Springsteen's fourth album, marked his entrance into a period of triumph unbroken to this day. He is now the major rock artist in the United States. And Landau's inflated claim holds some truth. Springsteen simultaneously evokes rock's past and validates its future. His is perhaps the most extended coherent expression of urgency in rock annals; in his work the intensity of rock and the patience of narrative play off and sustain each other.

When Bruce Springsteen surfaced to national fame in the mid-1970s, two notions about rock held wide currency. Contrary to the judgment of early skeptics, rock had demonstrated that, in its broadest sense, it was a musical genre as long-lived as one of its parents, jazz. It could create classics: single songs like Chuck Berry's "Sweet Sixteen"and the Five Satins' "In the Still of the Night"; albums like the Beatles' *Sergeant Pepper's Lonely Hearts Club Band* (1967), Van Morrison's *Astral Weeks* (1968) and Bob Dylan's *Blood on the Tracks* (1975). What had been in the 1950s and 1960s the unprecedented collective autobiography of a generation's bodies and souls in motion was providing in the mid-1970s the dynamic of memory and inspiration for that generation and its successors.

Yet if the music lasted, it was observed, the musicians did not—with important consequences for the long-term nature of their art. The deaths of Janis Joplin, Jimi Hendrix, Jim Morrison, the battle with drugs and relative decline of Eric Clapton and Bob Dylan, the total, if at moments fascinating, commercialization of the Rolling Stones—all suggested that, as an ongoing process, rock was as much a splendid collage of peaks and collapses as a tradition.

Since 1975, it has been Springsteen's distinction to perpetuate rock as a culture, in archetypical rock fashion, by breaking rules. His career has defied the quasi-legendary boundaries of the rock star's creative energies, and the limits this glamorized doom places on rock music's reach for emotional extension.

A rock star, Springsteen's career to date asserts, can find his soul in his music ("I was dead til I was 13 [and bought my first guitar]," Springsteen has said) and not die or sell out. Of all the arts, rock alone still

Photograph by Neal Preston, Camera 5

allows for complete and open credulity in the American dream. "Rock and roll, deliver me from nowhere," Springsteen fervently commands ("Open All Night," from the album *Nebraska*), and it did. Born of poor working-class parents in Freehold, New Jersey, in 1949, a quick community-college dropout, Springsteen always frankly longed to be a "rock-and-roll star"; and he knows and loves what holding that title entails.

Springsteen, like his predecessors, like the best purveyors of mass consumption, promises, first and foremost, to bring it home to you, to *deliver*. At his concerts, in the moments while the band is gathering on stage and the audience starts to croon "Bruce," the air vibrates with the shared happiness—a hybrid of liberation and dependency—only great mass art can bring. Every person of the thousands present wants exactly the same thing at the same time, and they are going to get it: Springsteen and his music, almost nonstop for a staggering three-and-a-half hours of enduring exhilaration.

Carrying the full messianic charge of the greatest rock performers—Little Richard, Elvis Presley, Joplin, Hendrix—Springsteen puts himself on the line in concert and on record. Yet he never stands on the firing line that has enticed predecessors like Joplin. He gives everything to his audience but his ability, drawn from his music, to cohere in his own eyes without theirs upon him. He has chosen, for over a decade now, to remain in his home state, New Jersey, to keep working with the same band—all but one from working-class New Jersey backgrounds like his own. Since his break, in 1978, from his first manager, he has retained complete control over the production of his music. He has avoided drugs, celebrity, any curtailment of his power of sustained creative commentary. By now it is clear that Springsteen, unlike John Lennon and Bob Dylan, his peers among rock lyricists, is writing the bulk of his best, most deeply interwoven songs in his 30's.

As a working-class boy, Springsteen learned his trade through an apparently undisciplined process of total saturation—he calls it "assimilation" as opposed to "study"—in the cheapest media outlets of rock, the AM radio station and the single recording. As Dave Marsh, Springsteen's best critic, points out, this fast-food, hand-to-mouth apprenticeship is perhaps the most valuable method of mastery that the rock medium, with its constant supply of short-lived products, offers. Transience and permanency, interlocked in a working contradiction, are the name of the rock game and the soul of Springsteen's music. He was a rock craftsman, and a fanatic of rock, from the start. Presenting in his music an exploration of rock history, he has kept alive the basic insistent beat and the upsurge of euphoric excitement familiar in rock since the 1950s. We recognize his music.

Springsteen's relative lack of interest in musical innovation, in the breakthroughs of his major predecessors, can provoke defensiveness in his admirers. Yet defense is not difficult. The hard-driving, stable sound of the E-Street Band and Springsteen's own fine if not riveting work on the guitar and harmonica leave room for the utter loyalty of Springsteen's stories. The new possibilities of rock narrative rather than those of rock music have mattered most to Springsteen's art. Between his boyhood in the 1950s and his 21st birthday in 1970, rock writing was revolutionized. By 1970, rock artists sang not only of love but of everything from political protest to their most intimate lives. They routinely exceeded the old standard three-minute length of a song, and they produced albums musically and lyrically conceived as a single piece of work. Springsteen was to push these innovations to new limits.

Rock has always dramatized the evanescent and emotionally permanent moments of experience: the peaks and lows of finding and losing love, making it and failing, times when life is too acute to find perception and adequate response. By the early and mid-'70s, in the aftermath of the youth movement, a number of rock's leading artists were trying less to snatch an archetypical moment from the lives of their *personae* than to convey through such a moment a sense of the entire emotional life—its reach and its limits—of those they sang about. Without dropping entirely into the heavily patterned forms of country or blues, retaining rock's emphasis on musical and lyrical shock, they pushed toward farther and stronger resonance. They covered both the explosion and the terrain on which it occurred. Dylan's *Blood on the Tracks* (1975) and Neil Young's astonishing three-record selection of his own work emblematically entitled *Decade* (1977) were the high signs of this new rock trend. But the momentum was broken and lost by the decline of a number of the artists involved, by shifts in the record industry, by changing needs in the rock audience itself. The nascent urge toward history attenuated into nostalgia and the sentimental valorization of rock's preceding two decades.

A disbeliever in memory-land music, Springsteen plays "oldies" in concert with the same inventive intensity that marks his own work. He appeared on the mid-'70s scene not to reminisce but to revive, maintain and further a commitment to telling what Jon Landau has called "the whole damned story." Springsteen has written dozens of hard-hitting songs, classics of the glory of the single rock moment, but he is also rock's first sustained narrator; he has made himself responsible.

Several rock artists before Springsteen have released albums over the years that are best grasped consecutively as a single sequence: perhaps the Beatles' records between 1963 and 1970, certainly Bob

Dylan's entire *corpus* from the early '60s to the present. Yet Springsteen has performed the task with a unique, masterful combination of instinct and self-consciousness. In a 1984 *Rolling Stone* interview, Springsteen said: "I was always interested in doing a body of work, albums that would relate and play off of each other....I was very concerned about gettin' a group of characters and followin' them through their lives a little bit." He considers his albums "for at least the last six or seven years" (from *Darkness* through *Born in the U.S.A.*) bound together by common "themes." His preoccupation with narrative, his acquiescence to its dictates, is everywhere apparent: from the legendary length of his concerts and the unusual amount of time he takes to bring out an album (seven in 11 years) to the phrasing of his individual songs and the connections between albums.

Springsteen's ratio of words-to-music is not always melodic. The absolute fusion of his singing with the E-Street Band playing, one of the most exciting sounds in contemporary rock, is an achievement Springsteen does not always wish to bring off. Particularly in his early albums, but here and there in all of them, the words at times escape or, rather, redefine musical phrasing: there are too many of them, their enunciation seems clumsy; they matter too much to the speaker. Yet Springsteen's special timing is powerfully effective. His songs phrase themselves most tightly through bursts of anger ("Sometimes I feel so weak, I just want to explode,/Explode and tear this whole town apart,/Take a knife and cut this pain from my heart" ["The Promised Land," *Darkness*]), more loosely in cadences of compassion ("You don't have to live that life" ["Point Blank," *The River*]), and almost garrulously in interpolated efforts at crucial explanation ("Lately there ain't been much work on account of the economy" ["The River"]). Intermittent awkwardness is an important and carefully mastered part of Springsteen's art: it suggests and engenders vulnerability in his protagonist and his audience. He can leave nothing out.

What is "the whole damned story" that Springsteen unfolds with such scrupulous prodigality? Not one ever told in rock before, certainly not at such length and depth. In wildly aching lyrics and music as powerful as its subject, Springsteen has enhanced rock's power to fulfill America's deepest artistic purpose, one long familiar to such writers as Theodore Dreiser, James T. Farrell and Jack Kerouac: its drive toward grotesquely commercial and heartbreakingly spiritual autobiography, its often frustrated impulse toward a complete account, the story of the neglected as well as the celebrated.

Springsteen conveys the lives and feelings of those he grew up with in back-town America: young men and women who have made rock the last form of heroism but have seldom been its heroes; those who did the fighting in Vietnam; the working classes and, more particularly, their young in-house spin-offs, sullen and stoic by turns. Springsteen's protagonists often must labor while they know their work underutilizes and overworks them. Their only alternatives to the deadening routine of what Springsteen calls "The Working Life" (*Darkness*) are the evanescent excitement of convenience stores, joyrides in souped-up cars, abortive romance and, for the lucky, a "band."

Like Farrell, Dreiser and Kerouac, Springsteen's American literary forebears in unedited narrative art, he asserts that the reality of life for many is economic and emotional depression: material deprivation, chronic irritation and sorrow, and difficult, feckless feats of elation and acting-out. And yet this depression is going on in America, the land Springsteen believes to be "a real big-hearted country, real compassionate." For him depression is a reality, and a betrayal. The question of the debt of Springsteen's protagonist to America, long and painfully overpaid at home and in Asia, is not of interest. What does America owe him? What can he get, if anything, from America? All Springsteen's lyrics, several of them virtual anthems of the anger of protest and the hope for deliverance, suggest that America must come through for its abandoned—an America still vital if only with their yet unquenched hope in it. "I believe in the promised land" (*Darkness*).

Narrative follows the scent of justice until the scent dies out, and then maps the vast terrain within the jurisdiction of justice but past its reach. Narrative is preoccupied with subsiding, the settling of accounts over time, with what is found and lost in sheer duration. Above all, in literary critic Frederic Jameson's words, narrative presents the world of "worn things....Those discarded objects that are used-up human lives." Rock, in Springsteen's hands, brings to this literary narrative material an intensified expression of the drab and explosive dynamics of the wearing-out process and, more important, an insistent sense of the fierce vitality to be found only in "used-up...lives." In "Badlands," from *Darkness on the Edge of Town*, the protagonist has "learned his facts real good": "poor man wanna be rich,/rich man wanna be king,/a king ain't satisfied/till he rules everything." He wakes "up in the night/with a fear" that he'll "spend [his] life waiting,/for a moment that just don't come." Yet the chorus, courageously collective in contrast to the stanzas, vows:

> Badlands, you gotta live it every day,
> Let the broken hearts stand
> As the price you gotta pay
> We'll keep pushing til it's understood,
> That those badlands start treating us good.

We hear in these words the essential Springsteen protagonist. His masculinity is assertive and embattled, his voice raw, his mood lunges from rage to seductiveness, from depression to exaltation. He

conveys an urgency and an immediacy of contact that make sincerity a merely literary concept. A poet of profound emotional reach, Springsteen has none of Dylan's and Lennon's skill or interest in verbal special effects. The Springsteen protagonist is one of those "powerful illiterate persons" that literary historian Perry Miller found at the center of America's most important writing. In all his incarnations, his chief demand is for the commodity that goes up in value as incomes, and lives, go down: other people's respect and, most of all, his own. Hence his quietly obsessive use of the titles "Sir," "Boy" and "Mister": people must ascertain and assert their places in relation to each other. He himself must "find out what I got" ("Badlands," *Darkness*). The struggle is difficult, ceaseless and dramatic.

Darkness on the Edge of Town represents a turning point for the Springsteen protagonist. He is aware that his earlier defiance against a world that "beats back hope for sport," as Dave Marsh puts it, is unlikely to succeed. Yet, if he is no longer "born to run," he is born to fight for and against "the promised land." The chorus of "The Promised Land" turns on the defiant line: "Mister, I ain't a boy, no, I'm a man." Anger is his self-esteem. *The River* (1980) marks a new chapter. "Independence Day," a song Springsteen performed in 1978 but specifically saved for *The River*, announces the later album's mood: emotional reconciliation of sorts, the protagonist's acknowledged relatedness to his inescapable heritage. The singer of "Independence Day," leaving home, tells the father he bitterly fought: "Papa, now I know the things you wanted that you could not say/...I swear I never meant to take those things away." His dignity now depends in part on his capacity for forgiveness. The evangelical forward thrust of *Born to Run* and *Darkness* is absent. The question of *The River*, posed in the grief-ravaged title song, is the oldest American question: "Is a dream a lie if it don't come true, or is it something worse?"

Nebraska (1982), Springsteen's next album, picks up the story at precisely this point. In his many incarnations, the protagonist must reach his pain. Most dreams don't come true and they are more valuable because of it, both as evidence against the prosecution, should this perpetually deferred case of injustice ever come to court, and as sustenance for the wiser, yet still "hungry heart" of the hit song of *The River*. Promises are cheap, promises run deep. Some dreams come true only in dreams: that is their limit and their depth.

Nebraska was the utterly private moment of the Springsteen *persona*, and Springsteen instinctively planned the album accordingly. The fiercely fraternal sound of the E-Street Band, a continuous musical pledge to a working community of the fervent, was irrelevant, even contradictory, to the eerie elisions of the solitary heart *Nebraska* elaborates. Springsteen planned to record the *Nebraska* material with his band; he ended by working alone for the only time in his career, accompanying himself on acoustic guitar and harmonica. He gave no tour centered on *Nebraska*. *Nebraska* explores the search for what a lived, even a partially lived-out, life has left at its source: the well is dark but not dry.

In *Born in the U.S.A* (1984), Springsteen returned to his band, his audience, his public self. Older and yet reborn, he is here intent on carrying the still pressing case against every kind of injustice, not to the courts, but to the people whose representatives Springsteen's protagonists are. Fittingly, the international *Born in the U.S.A.* tour of 1985 was his longest and most widely attended to date. With Springsteen's new emphasis on the local politics and local lives of the places where he performed, the tour took on limited but genuine populist overtones. The record itself, *Born in the U.S.A.*, a retrospective of Springsteen's career and a promise of its future, is equally inclusive. All his resources are available to him and to us. The songs range from the memory of the "wildest" times of youth ("Bobby Jean") to the ongoing awareness of the facts of the laboring life ("Working on the Highway" and "Downbound Train"), from protest against oppression ("Born in the U.S.A." and "No Surrender") to the need for intimacy in a hostile world ("Cover Me," "Dancing in the Dark"). In *Born to Run*, *Darkness*, *The River*, *Nebraska* and *Born in the U.S.A.*, Springsteen has completed the first rock pentalogy and given the primal American story a different ending. He chronicles the maturation, not the vitiation or abdication, of passion and protest.

Springsteen grew up in America's dumping grounds, a world he found paralleled in AM radio with its infinite fast-vanishing, self-assertive single records. Springsteen's greatness lies in his grasp of the paradox of rock music in particular and mass culture in general: the quick but repeatable satisfaction of deep needs by expendable means; perhaps a hoax, but one that can offer genuine first aid for what feels like our incurable selves. The artifacts of mass culture, like those whose only recreation is to consume them, perish; yet they are always duplicated, sometimes remembered and, in moments of grace, revitalized in fresh transformations. "Everything dies, baby, that's a fact," Springsteen sings in "Atlantic City" (*Nebraska*); "Maybe everything that dies someday comes back."

In *Nebraska*'s last cut, which presents vignette after vignette of loss and futility, Springsteen's protagonist tells us: "At the end of every hard-earned day, people find some reason to believe." Very unlike the Beatles' "Hard Day's Night" with its witty inversion of narrative logic, this "hard-earned day," another cheap yet precious mass commodity, is rock narrative's central unit. The unconscious process of the decision to take on another "hard day," which all Springsteen's protagonists make, is rock narrative's essential dynamic. "You gotta hope," Springsteen recently told *Rolling Stone*'s Kurt Loder, "you're headed for higher ground." ♦

TOWARD A CONSERVATIVE AGE

There is little doubt that in the 1980s conservative ideas have become ascendant politically and, to a lesser extent, in the social and cultural realms as well. In fact, as conservative scholar Robert Nisbet points out in a recent Public Interest *article, so many causes and ideas have been subsumed under the banner of conservatism that it is difficult to define the term. Nisbet, however, is convinced that "conservatism's greatest strength is its possession by historic right of such values as localism, decentralization, family, neighborhood, mutual aid, and belief in growth of business on the one hand and of religion on the other." □ In the first article of this* Review *special section, political scientist William A. Schambra explores the current concern with those values. He discusses the historical concept of a "national community," characterized by mutual sharing of benefits and burdens and promoted by liberal politicians of the last half century as the justification for many new centralized government programs. Schambra finds that today, instead of a national community, the United States is closer to a nation of communities comprising small, traditional participatory groups such as family, neighborhood, church, ethnic and voluntary associations. □ Following Schambra, other commentators discuss similar reappraisals in the spheres of politics, religion and culture. Political analysts Michael Barone and Grant Ujifusa attribute present conservative trends among voters—including antipathy towards big government—to economic factors enhanced by years of peace. Wade Clark Roof and William McKinney, scholars of religion, explain how a nationwide movement toward greater individual choice has shifted support away from mainline churches and led to the rise of fundamentalist groups on the Right. Further on, literary journalist James Atlas examines the divide between the old New York intellectuals and a younger generation that is far more diverse, both in matters of culture and politics.*

A Nation of Communities

By William A. Schambra
From The Public Interest

Twenty years ago, the idea of a national community was at its zenith. Lyndon Johnson had just been re-elected President by a margin that would surpass Ronald Reagan's showing in 1984, and at the heart of Johnson's program was the view that America is one united nation or community, joined by ties of brotherhood and neighborliness, characterized by a willingness to share mutually all benefits and burdens. In the course of the 1964 campaign, Johnson had outlined his understanding of America and its future: "I see America as a family" that "takes care of all of its members in time of adversity....I see our Nation as a free and generous land with its people bound together by common ties of confidence and affection, and common aspirations toward duty and purpose."

The concept of national community, which would subsequently be resurrected by Democratic presidential candidate Walter Mondale in 1984, provided Johnson with a powerful campaign theme in 1964. The concept also lay behind many of the slogans and expressions by which the Johnson Administration is remembered. Johnson described his program, for instance, as the "Great Society," thereby conjuring up precisely an image of America as one united so-

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ciety or nation. The idea of national community was, for Johnson, far more than a clever campaign slogan or a source of catchy phrases. The concept in fact explained and provided the moral underpinnings for many of the actual programs and policies of his administration. For the task of constructing the national community had not yet been finished, in his view. Significant portions of the American population remained on the fringes of the Great Society, deprived of a place of equal dignity in the national life by barriers of class or race. At the same time, those Americans already in the nation's mainstream were tempted by the great prosperity of the period to "drop out" of the national community—to shed the "common ties of confidence and affection" that bound them together, in order to indulge in purely hedonistic, private pleasures. A powerful, active federal government was required, according to Johnson, both to draw marginal groups into the national community, and to remind those already part of that community of their deep moral obligations to it and to their fellow citizens.

In Johnson's view, then, the idea of national community entailed a rigorous call to unity, public-spiritedness and compassion directed toward the nation as a whole, as well as a concrete series of programs designed to incorporate the unincorporated into the nation. That Johnson should have been such an ardent spokesman for national community is not unusual, given his conception of the presidential office. The President—the one nationally elected official in the land—was, for Johnson, the preeminent spokesman for national oneness. It was, above all, the President's task to summon the American people to their high moral calling. It was, he noted, "one of the great tasks of political leadership to make our people aware...that they share a fundamental unity of interest and purpose and belief." And so Johnson devoted his Presidency to the goal of "[keeping] us pulling together, keeping our ranks closed, keeping us loving our brother and our fellow man, instead of hating him, keeping us united before the world."

That the idea of national community should have figured so prominently in Lyndon Johnson's Great Society is only to be expected, given the centrality of that concept in progressive liberal doctrine throughout the 20th century.

Progressive liberalism had arisen early in the century as a response to what seemed at the time a grave crisis, namely, the erosion of the "natural" communities and associations of small-town America beneath the tides of industrialization, urbanization and immigration. Progressive liberalism claimed that it simply was not possible to restore this earlier form of community, but that it *was* now possible to move to a new and higher form of community—the national community. The essential instrument of this new and higher form would be a powerful and active federal government, or, more precisely, a powerful and active President. In influential author and editor Herbert Croly's compelling formulation, the Jeffersonian values of "community of feeling and...ease of communication" could now be established within the nation as a whole, using Founding Father Alexander Hamilton's instrument of an active central government.

The central government, for instance, could tame through regulatory measures those great and disruptive concentrations of private power, the corporations, thereby turning them into "express economic agents of the whole community," as Croly put it. The government would also become "expressly responsible for an improved distribution of wealth" and would begin to alleviate, through the tax structure and social-welfare programs, the inequalities of wealth that undermined the sense of national oneness. A vigorous program of "Americanization" would serve to integrate diverse immigrant populations into a single, coherent people. "Scientific management" and other new developments in the social sciences explained to government how enlightened, bureaucratic administration could order and direct toward public purposes the chaotic popular masses.

Behind these specific developments and programs, however, lay a larger moral project: the creation of a genuine national community which could evoke from the American people a self-denying devotion to the public good, a community in which citizens would be linked tightly by bonds of compassion and neighborliness. Americans would be asked to transcend their traditional laissez-faire individualism (which had been aggravated by the forces of modern industrialism) in order to bind themselves as one to the "national idea."

The catalyst of the national community, the articulator of the "national purpose," in the liberal view, was to be the President—the galvanizing, unifying voice of all the American people. He alone could unite and inspire the people by combining their many views into one, coherent view. From the "bully pulpit" of the executive office, the President would summon from the American people the self-sacrifice, public-spiritedness and compassion that the national community required.

World War I taught progressive liberalism the value of war as a device for cultivating those virtues. Liberal educator John Dewey would speak approvingly afterwards of the "social possibilities of war." Columnist Walter Lippmann was pleased that "the war has given Americans a new instinct for order, purpose and discipline," and had served to "draw Americans out of their local, group and ethnic loyalties into a greater American citizenship." Liberalism would never forget the lessons of 1917-18, and would thereafter search constantly for the "moral equivalent of war," a kind of war that would energize the national community without the actual spilling of blood.

Every "great" liberal President of the 20th century following Woodrow Wilson made the cultivation of the national community the central goal of his administration, pursuing policies to alleviate inequalities of wealth and power, bringing into the community marginal groups, calling upon Americans to put aside self-interest (often using the technique of the "moral equivalent of war"), and nurturing compassion and fellow feeling among the citizens of the nation. Franklin D.

Roosevelt, for instance, described the purpose of the New Deal as "extending to our national life the old principle of the local community." Americans, he affirmed, must consider themselves all neighbors: "The many are the neighbors. In a national sense, the many, the neighbors, are the people of the United States as a whole." Similarly, we remember John F. Kennedy above all for his stirring call to Americans to put aside self-interest on behalf of the national interest: "Ask not what your country can do for you—ask what you can do for your country."

Finally, of course, we return to Lyndon Johnson's Great Society, and see there again the familiar elements of progressive liberalism's national community: the programs to alleviate inequality and to incorporate marginal groups, the summons to national oneness, the exhortations to public-spiritedness and compassion, the quest for the moral equivalent of war (in this case, a "war on poverty"). Twenty years ago, progressive liberalism's vision of national community had a solid grasp on America's political consciousness. That was the vision that Walter Mondale hoped America would again accept as the basis of a great national project in 1984. To understand Mondale's failure, we have to understand what happened to the progressive vision in the last two decades.

If there was a central theme in the diverse currents of dissatisfaction and unrest that marked the period immediately following Johnson's election in 1964, it would have to be the loss of faith in the idea of national community that lay behind progressive liberalism. As Theodore White noted in *The Making of the President, 1968*, alienation became such a fashionable word in the politics of the period precisely because it captured this new skepticism: it was "the negative of the old words, the old faith that America was a community, and that government served the community." This loss of faith in the old form of community was accompanied (and partially caused) by an upsurge of faith in a new form—one that promised to overcome alienation. This new (or rather, very old) form focused on the intimate, participatory community to be found in small groups, family, neighborhood, church, and ethnic and voluntary association.

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One strand of this new view of community is to be found in the New Left thought of the 1960s. According to that thought, the society erected over the years by progressive liberalism was, in spite of its claims, radically anticommunitarian, characterized by the isolation and estrangement of its citizens. This was inevitable in a society governed by a massive, distant, alienating state bureaucracy, linked closely with giant business concerns in that unholy alliance the New Left came to call "corporate liberalism." The New Left hoped to satisfy the hunger for community through its doctrine of "participatory democracy." A society organized according to that principle would presumably devolve major political and economic decision making to small, tightly knit local groups. According to Wini Breines, author of *Community and Organization in the New Left*, the early demonstrations and sit-ins—characterized by "strength, solidarity, and caring...decentralization and spontaneity...participation and community"—confirmed the New Left's belief that participatory democracy was the best alternative to bureaucracy and alienation. Thus, as Greg Calvert of the radical Students for a Democratic Society put it, "while fighting to destroy the power of the loveless anti-community, we would ourselves create the community of love—the Beloved Community."

This impulse also characterized the Black Power movement of the 1960s and 1970s. That movement repudiated the integrationist premise of Lyndon Johnson's civil-rights measures, because the effort to draw blacks into the larger, national community was based, as Stokely Carmichael and Charles Hamilton expressed it in *Black Power*, "on the assumption that there is nothing of value in the black community and that little of value could be created among black people." Blacks should instead begin to "recognize the need to assert their own definitions, to reclaim their history, their culture; to create their own sense of community and togetherness." Carmichael and Hamilton noted proudly that black communities "are the only large segments of this society where people refer to each other as brother"—a sure sign, they claimed, of a "growing sense of community."

The most immediate and important political expression of the Black Power movement was the demand for community control of the instruments of social order—above all, the local school, but also the police, sanitation services and social-welfare agencies. Carmichael and Hamilton thus insisted that "we must begin to think of the black community as a base of organization to control institutions in that community." By assuming control of those institutions, black neighborhoods would presumably move closer to self-government, and would begin to develop notions of citizenship among their (currently alienated) inhabitants. The neighborhood would be drawn together more tightly—would be reminded of its oneness—by the celebration of black culture and morality in the schools and other public places. Blacks at the local level would, in short, become more of a true community.

The new doctrines of decentralized community favored by the New Left and Black Power worked their way toward the mainstream of American

politics (albeit in a modified form) through the presidential campaign of Senator Robert F. Kennedy in 1968. In *To Seek a Newer World*, Kennedy argued that "the loss of the sense of community is not just a problem of the ghetto; it affects all of us." Citing Lewis Mumford's dictum that "democracy...begins and ends in communities small enough for their members to meet face to face," Kennedy called for a "decentralization of some municipal functions and some aspects of government into smaller units, no matter what the race or economic status of the governed."

A final note of dissatisfaction with the national community came in the 1960s and 1970s from small groups and neighborhoods located at the end of the political spectrum opposite that occupied by the New Left. Lower-middle-class, white, "blue-collar" neighborhoods, usually connected to the old industrial cities of the North and East, usually heavily "ethnic" (of Southern and Eastern European origin), and often heavily Catholic, began to join the other groups expressing "alienation" from the federal government. That government—through what seemed to be cold, bureaucratic edict or equally cold judicial fiat—had launched an assault against the traditional prerogatives of locality and neighborhood to define and preserve their own ways of life. These people were told that they could neither pray in the local school, nor ban from the community forms of expression considered offensive and pornographic, nor enforce standards of sexual conduct considered appropriate, nor define the conditions under which abortion might be proper. Their police forces seemed to have been robbed of the power to maintain the social order of the community, and crime flourished in the streets. Finally, the progressive liberal goal of a racially integrated national community often seemed to call for measures that eroded even further the authority of the community. Housing restrictions that had sustained ethnic homogeneity fell, seniority lists of union locals were disrupted, and, above all, children were bused from the hallowed neighborhood school to distant destinations.

The ethnic neighborhoods soon revolted against what seemed to be utterly insensitive intrusions by the federal bureaucracy and judiciary into their ways of life, and for the first time since the Depression, their loyalties to the party of progressive liberalism came into question. Some spokesmen for the ethnics—author Michael Novak foremost among them—suggested that behind the dissatisfaction with the Great Society lay a deeper unhappiness with the entire liberal project. Ethnics had been the prime victims of progressivism's Americanization programs, and of the effort to create one vast, homogeneous national community through rationalization, bureaucratization and centralization. Now, Novak insisted in *The Rise of the Unmeltable Ethnics*, the ethnic revolt signaled the end of acquiescence in that project, and a "turn toward the organic networks of communal life...family, ethnic groups and voluntary association in primary groups." Though peculiarly ethnic in character, those organic networks were particularly promising remedies for the alienation of the broader public, including that of the young radicals; after all, Novak maintained, the New Left's "communalism...is a conservative reaction ...trying to recapture the threads of human association cut during the rise of the industrial order."

It appears, then, that although the "unmeltable ethnics" were defending established communities rather than trying to create new ones, their message was ultimately strikingly similar to those of the New Left and Black Power. They repudiated the idea of national community and its seemingly oppressive federal programs, and called for decentralization so that small, intimate participatory communities could flourish at the local level.

What explains the eclipse of the idea of national community during this period, and the rise of new notions of community? The answer in part is that the moral momentum of national community is extremely difficult to sustain. The project attempts to create artificially, at the level of the nation, a sense of mutuality and oneness that appears far more readily, almost "naturally," at the level of family and neighborhood. As noted earlier, this transfer is often possible in times of crisis, when the threat to the nation is sufficiently great that people do, indeed, feel obliged to pull together as one. The United States had experienced a succession of such crises since 1929—the Great Depression, World War II, the Cold War—and liberalism had used them to maximum effect to construct an ever more powerful central government. The extraordinary community-mindedness of national crisis is very demanding, however, and therefore difficult to sustain for long—especially when real crises are not available, and liberal Presidents must turn to "moral equivalents." The momentum of the idea of national community, sustained in part by perilous domestic and international developments since 1932, had simply given out by the mid-1960s.

With the moral foundations of the liberal project thus eroding, its programmatic superstructure—a massive, centralized federal government—was left in a peculiarly exposed and precarious position. Large segments of the American people no longer saw government as the instrument of high national purpose, having lost faith in that purpose. Government appeared, therefore, as a distant, alienating bureaucratic monstrosity, ceaselessly spawning intrusive, insensitive and expensive programs. What had originated as the instrument of community now seemed to many the antithesis of community.

As faith in the idea of national community eroded, it was perhaps inevitable that the American people should have turned to the idea of community that finds expression in small, participatory groups such as family, neighborhood, and ethnic and voluntary associations. These are, after all, more "naturally" communities and hence easier to create and sustain, if only because (to adapt an argument of Tocqueville's) the connection between the individual's private interest and a larger group interest is easier to perceive in such limited gatherings.

Americans had, furthermore, added the authority of constitutional and political tradition to the authority of nature. The framers of the Constitution had in 1787 reserved a number of important governing powers to the

No one became President between 1968 and 1980 without denouncing centralized government and promising to reinvigorate the states and local, small communities.

states, including, implicitly, the considerable power to regulate the health, safety and morals of their citizens. These features tended, more generally, to "send a powerful decentralizing impulse throughout the American system," as political scientist Martin Diamond has pointed out. The permanent political structure thus served to keep alive the states and localities, and these, in turn, served to keep alive the spirit of the small, local community.

That had been, of course, precisely the intention of those who had argued on behalf of the decentralizing features when the Constitution was being written. The proponents of those features, the Anti-Federalists, maintained that true republicanism depended on the political vitality of the states and localities. Were public affairs to be put entirely in the hands of a powerful, distant, central government—and this, they charged, was the inevitable tendency of the proposed Constitution—citizens would soon lose interest in public matters. They would thereby cease to be citizens at all; in the not altogether inappropriate parlance of the 1960s, they would become "alienated." Republicanism required sustained attention to public affairs—that is, public-spiritedness or civic virtue—and that was possible only when government was close to the people, as were, allegedly, the state and local governments. Sustained attention to public affairs also required that citizens be "close" to one another, that is, they feel themselves to be part of a genuine community. And such a closely bonded community, in turn, required a rough equality of wealth and power, a homogeneity of population and a commonly shared, rigorously inculcated moral or religious tradition. These conditions of community, the Anti-Federalists insisted, could again only be satisfied within the "small republics" of the states and localities.

In the New Left and Black Power movements we find the Anti-Federalist argument that individuals become citizens and acquire a sense of control over their own affairs only within the egalitarian "small republic" of the locality. In the defenders of the ethnic neighborhoods we find an emphasis on homogeneity of population and the preservation of a common religious or moral tradition. And in all modern movements we find the Anti-Federalist contention that large, centralized government is ultimately alienating, and the preference for the small, local community. The movements of the 1960s and 1970s indicated both that the small-republic spirit had by no means perished in modern industrial America, and that the national-community idea simply was not an adequate substitute.

The resurgence of small-republic sentiment was sufficiently strong in the 1960s and 1970s that it soon found its way into the mainstream of American politics. Indeed, every President from 1968 to 1980 was compelled to accommodate that sentiment with decentralist rhetoric and programs; no one became President during this period without denouncing centralized, bureaucratic government and promising to reinvigorate the states and small, local communities.

President Nixon, for instance, promised that the centerpiece of his administration would be a "New Federalism," in which "power, funds, and responsibility will flow from Washington to the States and to the people," through block grants and revenue sharing. The purpose of those programs would be to "restore to the States their proper rights and roles in the Federal system with a new emphasis on and help for local responsiveness," and to "narrow the distance between people and...government." President Ford generally echoed these sentiments after Nixon's resignation. He pushed hard for the Community Development Block Grant program in 1974, for instance, because it would help "return power from the banks of the Potomac to the people in their own communities."

Ford was eventually ushered from office by a man who charged that the Republicans had, rhetoric notwithstanding, permitted the federal government to become too large and inefficient. Jimmy Carter, cultivating his image as a man steeped in the moral and religious traditions of small-town America, promised a new emphasis on local community in his administration. He insisted that "the only way we will ever put the government back in its place is to restore the families and neighborhoods to their proper places." After the election, Carter created a new unit at the Department of Housing and Urban Development—the Office of Neighborhood Voluntary Associations and Consumer Protection—and turned it over to a prominent neighborhood activist, the late Father Geno Baroni, who helped launch a series of neighborhood development initiatives.

Though federal programs grew tremendously throughout the Nixon, Ford and Carter Administrations, such growth came increasingly to be described as illegitimate—the product of programmatic inertia, entrenched interest groups and bureaucrats, a fragmented congressional structure—even by the Presidents under whom such growth occurred. Federal programs no longer seemed to express or reinforce the profound moral and political project of building a national community. After 1968, Presidents seldom affirmed in Lyndon Johnson's confident tones the centrality of the federal government

in American life. No President spoke of building a "Great Society" in America.

This context is essential for understanding Ronald Reagan's victory over Walter Mondale in 1984. Mondale constructed his campaign around the revival of the ideal of national community. "My America is a community, a family, where we care for each other," he insisted.

Reagan, however, seems to see America neither as a great national community, nor—Mondale to the contrary notwithstanding—as a disconnected collection of rugged (and mean-spirited) individualists. He seems to see America, rather, as a nation *of* communities, rooted in the small-republic idea of intimate association in local communities, neighborhoods, families, and ethnic and voluntary associations. As he formulated it on one occasion, he wants an America that is an "orderly, compassionate, pluralistic society—an archipelago of prospering communities and divergent institutions."

Given these observations, it simply will not do to view the results of the 1984 election as the triumph of naked selfishness over community. Mondale chose—or was compelled by his allegiance to the progressive liberal tradition—to tie his campaign to an idea of community that had been in decline for a decade and a half. It had been in decline because it no longer answered the quest for community in a way that was satisfactory to most Americans.

As this idea had declined, Americans had begun to indicate that they now preferred to satisfy the quest for community in more traditional ways, and President Reagan, for most of his public life and certainly in 1984, had spoken precisely to this small-republic sentiment. For many Americans, he seemed to remain, even after four years in office, a "Washington outsider," an opponent of centralized, bureaucratic government, a spokesman for the moral values of the small town and neighborhood. His popularity testifies to the continuing decline of the idea of national community, and the vitality of the small-republic renaissance that began in the 1960s. ♦

New Political Consensus

By Michael Barone and Grant Ujifusa

Both the 1984 election and a recent pronounced optimism in public-opinion polls indicate widespread satisfaction with the status quo in American political life. The present peaceful era, say Michael Barone and Grant Ujifusa, has given rise to a moderately conservative attitude among voters, largely because Americans tend to be skeptical of big government except during wartime or economic crises.

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To understand American politics in the middle 1980s, you need to accept something about the country that probably will be the first thing future historians will notice about our time, but which almost everyone fails to see or even denies today: the United States is a nation at peace. And not only—though this is the most important reason—because it is not at war, but because it is not likely to be involved in a major war any time soon. It is also a nation at peace, to a greater extent than is realized, with itself. Beneath the turmoil and clash of everyday American politics, beneath the sometimes apocalyptic rhetoric, Americans have been approaching a consensus about basic values and policies, and something resembling a consensus on the differences they are willing to tolerate in each other. Amid all the fashionable talk of the politics of alienation, angst and anomie, the election results of 1984 helped to reveal Americans to themselves as reasonably pleased with the nation they have come to be.

If you find this conclusion implausible, pause for a moment and consider the 1984 election returns. Taken together they show not a new Republican majority or the further decay of an old Democratic coalition, though they provide tantalizing evidence of each. But the most striking thing about the election returns is that they show victories for incumbents.

Incumbent victories are not by themselves proof that voters are satisfied. They may just be repelled by the alternatives. But the incumbent victories of 1984 followed a striking shift in the underlying currents of public opinion. Consider the responses to the political pollsters' typical opening question, "Are things in the nation today going in the right direction, or are they pretty much off on the wrong track?" Through most of the 1970s and into the 1980s, the responses were almost always negative, sometimes by more than two-to-one margins. Only with the accessions of new

Presidents did optimism appear, and then quickly vanish. That happened again in 1981. But this time optimism reappeared in 1982, well in advance of the economic recovery, at a time when the United States was in its fourth year of recession. In early 1984 pollsters found most Americans optimistic about the direction of the nation, and over the summer and fall their optimism grew. Obviously this worked to the benefit of that most optimistic of incumbent Presidents, Ronald Reagan. But evidently it also worked to the benefit of incumbents of both parties running for offices of all kinds.

The result was a ratification of the status quo. The voters voted to continue the policies and spirit of Ronald Reagan—as modified and moderated by the sometimes different-minded Republicans in the Senate and the very different-minded Democrats in the House of Representatives. This is quite an extraordinary result. Only once before in American history have voters continued different parties in control of the two houses of Congress for three elections in a row, and that was in the 1880s when the balance between the parties was much closer, and more regionally based, than it is now. The voters have shifted the political fulcrum back and forth several times in the last decade, giving wide power to the Democrats in 1976 and giving Republicans control of the legislative process in 1980. But increasingly the fulcrum points seem closer together. The voters seem to have reached a balance they want.

It is a balance that makes sense, at least in terms of the issues of the past. It was quite evident in the 1970s, well before the Republican victories of 1980, that the public wanted limits set to the expansion of government. Yet it was also apparent, early in the first Reagan term, that the voters didn't want significant cuts in programs like Social Security that help the vast middle class; the Republican-controlled Congress shied quickly away from any such proposals. The evidence is that the balance between the public and private sectors—the major domestic subject of political debate in the United States for 50 years—is today pretty much where the public wants it and has voted to keep it, much to the frustration of ideologues of Left or Right.

So is the balance on foreign policy. Here of course other elected officials have only a marginal effect on a determined President—or on determined executive-branch officials who have the confidence of the President. Yet they can set some limits, and do. Americans obviously came to regard the Carter Administration's foreign policy as conceding too much; they prefer the more assertive policies of Ronald Reagan, but with their assertiveness toned down and their risks limited by concessions extracted from other politicians.

Of course this balance in American politics won't last. The actors will change and, more important, the issues will too. But the fact that the United States is a nation at peace will, we must hope, not change. The historian William McNeill has described how, through history, military mobilization has been accompanied by government control over the economy: big war machines and big governments go together. In *Pursuit of Power*, he describes "the twin processes that constitute a distinctive hallmark of the 20th century: the industrialization of war and politicization of economics." Arms races and wars tend to produce command economies, which are less efficient than and grow less than market economies, in this view.

Certainly in a democracy citizens' tolerance of government interference increases in wartime. The mobilization policies of 1917-18, as McNeill points out, helped inspire the New Deal; and it was World War II, and not the New Deal, that resulted in a steeply progressive income tax. For a time in the 1940s it looked as if Americans might find most new housing built by the government, as in Britain; have most workers represented by unions, allied to Democratic administrations; have a system of government economic planning and allocation of resources. None of these things happened, but fierce battles were fought over them, and each had significant support. To a very large segment of the public, they didn't seem illegitimate or unthinkable. In a time when government is drafting young men and sending them to their deaths, it's hard for others to complain that the government is taking their money.

Today, as social historian and critic Irving Howe has noted, the political debate has moved to the right of where it was 40 years ago. Americans have more government; its share of the gross national product has increased largely because of increases in transfer payments and programs that help the middle class. But the United States has given up on expanding government into areas where it seemed quite plausibly to be moving in the 1940s; almost no one thinks it even worth arguing anymore that the government should build housing or allocate capital or even encourage labor unions.

That shift to the right has come during 40 years of peace. Uneasy peace, to be sure, and a peace punctuated by limited wars in Korea and Vietnam and (in terms of American involvement) minor skirmishes elsewhere. But Korea and Vietnam, however much they may have shaped the attitudes of the young men who fought in them, have had nothing like the effect on the general society of a major war like that of 1941-45. In major wars death is widespread enough to make a demographic imprint on the population; military service is universal enough to be dreaded everywhere; mobilization is pervasive enough to demand sacrifices of practically everyone. No war since 1945 has had that kind of impact on the United States. Korea and Vietnam if anything tended to erode rather than strengthen the idea that government had legitimate claims on the persons and money of citizens.

Now the United States has a President whose attitudes and beliefs were shaped during those war-influenced years. Ronald Reagan, who began as a New Deal liberal and supporter of the war effort, became an opponent of big government and an advocate of cutting taxes. He came to office in an America 35 years away from major war and ready for his message. His politics—or his politics as modified by Congress—is the natural politics of a nation at peace.

So, it can be argued, is his foreign policy. Reagan is a steady opponent of

The American political debate has moved to the right of where it was 40 years ago.

the draft: no government compulsion here, either. America has in effect a free-enterprise military, filled by young men and women motivated by a mixture of economic incentives (job training as well as pay) and by the spirit of national pride which even Democratic presidential candidate Walter Mondale admitted Reagan has helped to inspire in the America of the 1980s. The quality of recruits, which improved during the Reagan recession years, also improved during the Reagan economic recovery.

If a nation at peace is less tolerant of government intervention than a nation at war, so also is it more tolerant of diversity in its own ranks. A nation at war is, literally, in uniform; it stresses the things that bind it together; it necessarily celebrates its unity and homogeneity. The America at peace in the 1980s does quite the opposite. The conformity that so many observers noticed about the America of the 1950s has not always been a feature of the country's history, which is full of cantankerousness and eccentricity, variety and diversity; it was an artifact of the shared experiences of depression and, particularly, war which made Americans want to be more alike. There were still divisions in the '50s—regional, ethnic and racial, economic—but, as the years went on, those divisions tended to blur: the end of racial segregation made the regions more alike, the decline of discrimination in daily life and the ongoing march of the generations submerged many ethnic and racial differences, the rising tide of affluence put the very large majority of Americans into an economic class that only a few enjoyed in the Roosevelt years. Yet at the same time, these increases in affluence and toleration were leading to greater cultural variety; Americans could afford to choose their own identity.

For most Americans the unsettled—and unsettling—issues of cultural values and ways of life are now more important and pressing than the mostly settled issues of economic policy and ethnic division. Those issues do not cut in only one direction. The Democrats expected to be big winners in 1984 off the series of cultural issues they summed up in the phrase *gender gap*, which refers to the difference between men's and women's voting choices. Yet it was the Republicans who made large unanticipated gains among two culturally defined segments of the electorate—voters under 30 years of age and those interested in high technology, whom the Reagan campaign targeted shrewdly and with an understanding that it was not replicating something that had happened in the past but was producing new results based on attitudes that have major consequences for the future.

Those who thought the gender gap would swing the 1984 election to the Democrats made their mistake by ignoring the overall context and the possibility of backlash. The kind of feminism associated with gender-gap enthusiasts did in fact create its own backlash. Also, underneath the overall gender gap are other gaps. Married people are now a lot more Republican than unmarried people; divorced people vote differently from the widowed, even when you control for age, and so on. Moreover, to the extent that gender-gap enthusiasts were protesting against things as they were, they found working against them the strong optimistic trend of opinion that was the decisive undercurrent in the 1984 elections.

Working in tandem with that surge of optimism, in contrast, were the two unanticipated cultural trends that worked for Ronald Reagan. The first was the strong Republican trend among voters under 30. The Democrats, who supposed that voters under 30 in the early 1980s would act just like voters under 30 in the late 1960s, were caught utterly by surprise—just like the demographers and political conservatives of the late 1960s, who thought that the baby-boom generation (defined as those born between 1947 and 1962) would turn out to be like its parents' generation, complete with large families and conventional, conformist cultural attitudes. The natural rebelliousness of this generation of youth seems to have been directed, not at all the American institutions which Americans generally have been corrosively criticizing for the last dozen years, but at the habit of corrosive criticism itself. They looked around at a country that Democrats and news commentators and grownups generally have been saying is in the terminal stages of decay and saw that it was actually a pretty decent place: a nation of widely shared affluence, of tolerance, of achievement. They gravitated naturally to the one politician who has been delivering this message all along, even when it went against the grain—Ronald Reagan.

So, though it was not noticed as much, did America's technology-minded citizens. The environmental and cultural issues which once attracted such voters to liberal banners now seem settled. The economic policies of Reagan Republicans—lower taxes—seem unmistakably to have stimulated a round of technological innovation and economic growth. The Democrats tend to see technology, from smokestack industries to nuclear power, from the latest strategic nuclear weapons to the 20th century's proliferation of the automobile, as a threat. But by the middle 1980s, when millions of Americans were buying video-cassette recorders and home computers, technology seemed user-friendly. It was making life better.

Reagan won because most voters thought he stood for prosperity and for peace, in a nation which they recognized, after years of negativism and cynicism, as a prosperous and peaceful place. As for the immediate future, those who are looking for political upheaval or realignment, for a leftward lurch in response to economic troubles or for the emergence of a reliable Republican majority in approval of all of Ronald Reagan's policies seem likely to be disappointed. The 1984 elections portray the United States as a nation at peace—a people who, for a time at least, have reached an equilibrium they would like to maintain. ♦

The Changing Religious Landscape

By Wade Clark Roof and William McKinney
From THE ANNALS

Two movements are occurring simultaneously on the American religious scene: the decline in membership among mainline Protestant denominations, primarily among those that are liberal in social outlook, and the rapid growth of fundamentalist groups that interpret the Bible more strictly and call for traditional moral values in public life. The common thread is a growing religious individualism. Less bound to inherited beliefs, "faith becomes a highly individualized, privatized matter," as Wade Clark Roof and William McKinney put it.

Roof is a professor of sociology at the University of Massachusetts at Amherst. McKinney, research director for the United Church Board of Homeland Ministries, has written Religion's Public Presence.

Religion, in the view of most Americans, is personal, a matter of one's opinion, a private matter with which neither church nor state has the right to interfere. A Gallup poll finds that 81 percent of the U.S. population feels "an individual should arrive at his or her own religious beliefs independent of any church or synagogue" and that 78 percent feels "a person can be a good Christian or Jew without attending a church or synagogue." That trends have moved in the direction of greater religious privatism in this century is hardly disputable.

Yet three other observations about the current scene also seem irrefutable:

1. Americans continue to identify with the historic religious traditions. The same polls that suggest the strength of religious individualism in the United States also reveal that 90 percent of the population expresses a religious preference and two-thirds are members of a local church or synagogue. Even the unchurched and those only nominally involved in organized religion tend to a remarkable degree to profess loyalty to their religious tradition.

2. For Americans, religious groups continue to fulfill important quasi-ethnic functions, providing millions with a sense of meaning and belonging. Even in a time when church religion may not be highly salient for many and connections between faith and life seem vague, such groups remain deeply embedded in American life as major voluntary organizations. Like the family, the neighborhood and other voluntary activities, religious groups are "mediating structures," linking individuals and families to the larger social order; they are people-sized, face-to-face institutions where the things that matter most in personal and communal life can be dealt with.

3. Religious themes have taken on new significance in the public arena. A greater evangelical and fundamentalist religious presence, plus polarization along ideological lines, has made Americans keenly aware of the differing religious traditions that make up the American religious mosaic. In a crystalized and very forceful way, religious developments of the past decade have forced to the forefront the question of religious America—if, and in what way, the country can be conceived of as a sacred enterprise.

Another trend in keeping with greater individualism is that in the years since midcentury, the United States has become much more pluralistic in its religious life. Far from being the "triple melting pot" of Protestants, Catholics and Jews that religion scholar Will Herberg envisioned in the 1950s, religious boundaries have developed in new and unanticipated ways. Denominational identities did not dissolve as some—including Herberg—expected they would in the course of assimilation; there have been denominational unions—mainly reunions between different branches of similar churches—but institutional attachments are as strong and maybe stronger today than they were three decades ago.

A broad profile of religious America currently is as follows: liberal Protestants comprise approximately nine percent of the population; moderate Protestants, 24 percent; conservative Protestants, 15 percent; black Protestants, nine percent; Catholics, 26 percent; Jews, two percent; other faiths, eight percent; and nonaffiliates, seven percent.

Over the years, however, there have been gradual but significant changes in the relative sizes of the three great religious communities—Protestant, Catholic and Jewish. Most notable is the steady decline of the Protestant majority. Since 1952 Protestant preferences have declined from 67 percent of the population to 57 percent. These losses continue a larger pattern of Protestant decline throughout this century. In general, the losses resulted more from decreasing numbers of new members among such liberal mainline denominations as the Episcopalians, United

"Denominational America and the New Religious Pluralism." *The Annals* 480 (July 1985): 24-38.

Virtually all the churches that have continued to grow after World War II are conservative. Rigid and demanding beliefs, traditional values, absolutist moral teachings—all seemed to fill the needs of the times.

Methodists and Presbyterians than increases in dropouts. Proportionately fewer persons were joining after the mid-1960s, and among those joining, fewer were becoming active participants. Younger adults were conspicuously absent, raising speculation about a lost generation in these churches.

But more than a matter of numbers, the erosion of Protestant strength is a matter of ethos. Historians date the beginnings of the Protestant establishment's decline early in the 20th century, but the age of Protestant dominance did not really end in the minds of Americans until the 1960s. The nation elected a Roman Catholic President, and a Supreme Court decision rendering public-school prayer unconstitutional profoundly undercut Protestantism's hold on the culture. Even more so now than when he wrote it, Herberg's comment is true: "Protestantism in America today presents the anomaly of a strong majority group with a growing minority consciousness."

In contrast, the Catholic community has steadily grown almost decade by decade. In the short space of 30 years Catholics increased from 22 percent to 26 percent of the population. Benefiting from a high birthrate and immigration, they have gained numbers in about the same proportion as Protestants have lost them. Of course, they have grown in social standing and cultural influence as well. In the postwar period, Catholics made spectacular gains in education, occupational status and income, such that their overall status levels are now equal to those of Protestants. With upward mobility and assimilation, they have come to resemble Protestants in many respects: in social attitudes, political-party affiliation and in religious practices.

To a lesser extent, Catholicism even experienced some of the same reverberations as mainline Protestantism. While membership continued to increase, it was at a declining rate. Declines in religious participation were striking, from 74 percent of Catholics attending mass weekly in 1958 to 51 percent in 1982. The declines were most evident for young, upwardly mobile communicants.

The Jewish population appears to have declined relative to the others. A low birthrate and high levels of intermarriage have worked to keep the size of this faith community relatively small. Even so, Jews remain a distinctive and identifiable religious minority whose social standing and influence are disproportionate to their numbers.

All three of these religious communities are experiencing declines in participation. From the 1940s until the mid-1960s, roughly three-quarters of the American population consistently reported they were church or synagogue members. But polls in the 1970s began to show distinct declines, to a low 67 percent in 1982.

Virtually all the churches that have continued to grow after World War II are conservative—particularly Protestant evangelical and fundamentalist bodies—with membership increases often exceeding the nation's population growth rate. Among these bodies are the Seventh-Day Adventists, the Church of the Nazarene, Assemblies of God, the Salvation Army and various small pentecostal and holiness groups. In both the 1960s and 1970s these churches grew at phenomenal rates, some as much as 60 to 70 percent each decade. The Southern Baptists also grew, becoming in 1967 the largest Protestant denomination. Indicators other than membership suggested an upswing in religious conservatism: church-school enrollments, missionary support, book publishing, the founding of Christian schools. This marked growth in the conservative faiths along with the liberal declines indicated, as religious historian Martin Marty has noted, a "seismic shift" in the nation's religious landscape.

Nor was the shift limited to conservative Protestantism. Within Catholicism there was reaction to the liturgical and modernizing trends set in motion by Vatican II. While some sought to adapt to new ways, others called for a return to traditional Catholic values and authority. Within American Judaism there was a discernible shift in mood as well. Orthodox Judaism in the 1970s grew more rapidly than did more liberal branches. Rejecting what many regarded as the lax observance of the latter, growing numbers of Jews turned to the more traditional faith in search of a distinct religious identity and prescribed way of life.

In many sectors, then, conservative religious currents were flowing. A dominant secular culture provoked deep antimodern reactions. In religion, as in other realms, a back-to-basics mood prevailed. Evangelical and fundamentalist faiths flourished as the cultural and religious center seemed to collapse. Rigid and demanding beliefs, traditional values, certainty, absolutist moral teachings—all seemed to fill the needs of the times. By drawing cognitive and behavioral boundaries and adhering generally to a nonaccommodating stance toward modernity, these faiths offer a clear alternative to secular points of view.

Nowhere is the tide of religious conservatism more visible than in the growing confrontation over moral issues. By the late 1970s, supporters of the conservative ideologies of the religious Right clashed on one issue after another with ideologies they unceasingly labeled "secular humanism." Views came to be most polarized around two basic social institutions: the family and the school. Profamily leaders crusaded for a return to tradi-

tional roles for men and women and actively opposed equal legal protection for women and homosexuals. The polls show that evangelicals and fundamentalists are far more inclined than mainliners to favor a ban on abortion and to oppose the Equal Rights Amendment to the Constitution.

Like the family, public schools were viewed with great concern. Leaders in the profamily movement accused the schools of eroding the morality of children by teaching evolution, by using humanist textbooks, and by not having mandatory school prayer. There is widespread support for a constitutional amendment permitting prayer in the schools, and the public seems to be about equally divided on whether evolution or creationism should be taught in the classroom.

The New Christian Right has emerged as a visible force, partly as a result of the electronic church and its vast network of religious programming and popular television preachers. But the change is more than just an increase in media exposure: there is a new tone of political involvement. Long known for their private faith and suspicion of involvement in politics, fundamentalists have become more involved in voter registration; in speaking out on issues such as school prayer, abortion, pornography and national defense; and in openly endorsing or denouncing candidates for public office on the basis of their voting records or positions on issues. President Reagan's landslide second-term victory reflects to some extent this new activism. The Moral Majority and Religious Roundtable have thrust the religious Right into the public arena in an effort to reshape American public life, calling for traditional moral values and a return to Christian America. Focusing on moral, and not simply religious, concerns, evangelical and fundamentalist leaders have been able to forge an alliance with others also disturbed by these issues—religionists as diverse as Mormons, traditional Catholics and some Jews.

In sum, the traditional ascriptive loyalties that once shaped America's religious communities have lost much of their hold in the contemporary setting. The lines of class, race, ethnicity and region—the "social sources of denominationalism" identified by theologian H. Richard Niebuhr a half century ago—are not as clearly drawn today as they were in an earlier time. Niebuhr wrote of a time when the country was in its formative stages and the religious communities were taking shape around the evolving caste and class cleavages of the period. Since then social and demographic shifts have significantly altered the social basis of religious life and have leveled many of the historical differences in doctrine and piety. These trends, combined with greater confrontation between religious and secular forces, now place the denominational scene in flux and are bringing about new relationships between religion and culture.

Modernity creates a situation in which faith becomes a highly individualized, privatized matter. Less and less bound to an inherited faith, the present-day believer is able to shop around in a consumer market of religious alternatives and pick and choose among aspects of belief and practice. As sociologist Peter L. Berger points out, the modern pluralistic world forces upon individuals a "heretical imperative"—the necessity to choose among alternative interpretations and select those elements within a single heritage that are illuminating from those that are not. That is to say, in the tradition of religious voluntarism, the individual is given a great deal of autonomy as well as responsibility in arriving at a religious frame of reference. Religious pluralism of course encourages the privatization of faith, as it forces a denominational preference, and trends of the modern period have further accentuated this tendency. Greater opportunity to exercise choice on the part of the believer is simply the logical extension of religious voluntarism, or as the late sociologist Talcott Parsons once said, "the individual is bound only by responsible personal commitment, not by any factor of ascription."

Trends toward religious privatism are evident in all the major faiths. Liberal Protestantism especially is vulnerable. Because the liberal churches have historically encouraged freedom of choice among their members, institutional loyalties often suffer. Consequently, some members in these churches can be thought of as believers but not belongers in the conventional sense. But even in the conservative churches, where group loyalties are stronger, there is great emphasis on individual salvation and personal responsibility. Evangelism thrives on individuals who make their own decisions; first comes the decision to believe, and then comes voluntary membership in the church. Perhaps the appeal of the electronic church and its television preachers to so many evangelical, fundamentalist Americans is that they particularize and render private religious experience and choice.

Even within the tradition with the greatest heritage of ecclesiastical authority—American Catholicism—there are ample signs of a growing religious individualism. Vatican II unleashed enormous energies in this direction. In the United States especially, with its heritage of religious voluntarism, the relaxation of institutional standards led to what Catholic sociologist Andrew M. Greeley describes as selective Catholicism—with emphasis on participation as a matter of individual conscience and on drawing on the tradition as one chooses. Over the past decade many young Catholics have opted for religious styles that allow for greater individuality in matters of belief and practice, and with this choice has come less respect for the authority of the church, especially in matters of sexual morality and personal lifestyle.

Yet it would be easy to overstate the case for a growing religious individualism. With the possible exception of liberal Protestants, group-based institutional attachments remain fairly strong for conservative Protestants, blacks, Jews and many Catholics. Quasi-ethnic communal ties are not diminishing in any significant way. Even those who are highly privatized in their faith tend not to lose their religious identities. For example, many who have drifted away from regular mass still think of themselves as Catholics. Finally, declines in church attendance appear to have bottomed out in the late 1970s, which may portend a more stable period of institutional religious attachments for the future. ♦

Intellectuals on the Right

By James Atlas
From THE NEW YORK TIMES MAGAZINE

The world of the American intellectual has undergone a radical change since the days in the 1940s and '50s when a handful of left-wing New Yorkers associated with Partisan Review *wielded considerable influence on American cultural life. And this change, notes James Atlas, is not only one of political orientation. In the following article, Atlas, a contributing editor to* Vanity Fair *and biographer of poet Delmore Schwartz, discusses some of the cultural and economic factors that have shaped a new generation of American intellectuals.*

Partisan Review was a magazine I read avidly in college. I read not just the current issues, but the heavy, maroon-bound volumes from the 1930s and '40s announcing the latest article by Lionel Trilling or Edmund Wilson, a new poem by Wallace Stevens or Allen Tate, a story by Saul Bellow or Bernard Malamud. To see the work of my literary heroes in its original form, the way it had appeared before most of them were famous, was a strange experience; it made them somehow less sanctified, more real. I was discovering these writers the way their original audience had, leafing through a periodical meant to be picked up from the newsstand and read in a Greenwich Village cafeteria in New York City.

Partisan Review is still a going concern. It recently celebrated its 50th anniversary with a giant issue featuring work by eminent contributors from several generations: Diana Trilling, Alfred Kazin, Philip Roth, Norman Podhoretz, Leonard Michaels and on down to a handful of writers just beginning to establish themselves. But the spirit of that issue was largely nostalgic; the passions that animated the 1930s and '40s are history.

"Our literature, our culture, our politics are full of contradictions and reversals and polarizations," William Phillips, the magazine's cofounder and still its editor, wrote in his introduction. The old political categories are obsolete. The endless debates between various factions on the Left about Stalinism versus Trotskyism, the role of intellectuals in American life, the relationship between politics and art, have given way to acrimonious disputes between neoconservatives and a dwindling band of liberals. Literary criticism, once the provenance of free-lance intellectuals, has become the property of academics and journalists. Whatever their current political allegiances, the surviving New York intellectuals agree on one thing: the world isn't what it was.

The surest sign of any group's demise is the appearance of memoirs, and the New York intellectuals have been busy writing theirs: Lionel Abel's *The Intellectual Follies*, William Phillips's *A Partisan View*, Irving Howe's *A Margin of Hope* and William Barrett's *The Truants* [see *Dialogue* 59] have appeared in the last few years. Sidney Hook is at work on a memoir entitled *Out of Step: A Life in the Twentieth Century*, and Diana Trilling is writing a book about her life with her late husband, Lionel. There are half a dozen other books in the works on Trilling, as well as a biography of Philip Rahv, one of *Partisan Review*'s founders, and a forthcoming study of the whole group.

Who made up this self-appointed elite? "They are, or until recently have been, anti-Communist," wrote Irving Howe in a famous 1967 essay, "they are, or until some time ago were, radicals; they have a fondness for ideological speculation; they write literary criticism with a strong social emphasis; they revel in polemic; they strive self-consciously to be 'brilliant'; and by birth or osmosis, they are Jews." Cosmopolitan, erudite, argumentative, the New York intellectuals were custodians of culture, interpreters of Marxism, existentialism—whatever was in the air.

"The definition of a New York intellectual is to think he's the last one," says Morris Dickstein, a professor of English at Queens College in New York and author of a book on the 1960s, *Gates of Eden*. And indeed, that type—radical, Manhattan-bound, oriented toward Marxism and European literature—has left few heirs. A changing economy, the political march to the Right, the assimilation of Jews into mainstream America, the proliferation of universities, and a city changed beyond recognition since the 1940s have rendered obsolete the urban intellectuals of an earlier time.

Intellectuals have always composed an adversarial elite; it's in the very nature of the job. In 19th-century Paris, in Russia during its succession of revolutions, they were anarchists and radicals, dedicated to the overthrow of despotic governments. But to be an intellectual isn't necessarily to be on the Left. It's a paradox that so many of

the great modernists championed in the pages of *Partisan Review*—W.B. Yeats, Ezra Pound and D.H. Lawrence—were antidemocratic, even reactionary. T.S. Eliot declared himself a royalist in politics, a classicist in literature and an Anglo-Catholic in religion. The important thing was to criticize society—from whatever vantage offered the best defense of culture against the philistines.

The New York intellectuals were left-wing as a matter of course. "Everyone assumed you were some kind of socialist," says Irving Kristol, coeditor of *The Public Interest*. What was endlessly debated was where on the Left you stood.

The prevailing ideology among New York intellectuals today is neoconservative. Intellectuals, like everyone else, tend to follow power. What neoconservatives have been saying for years—that revolutionary movements invariably pose a threat to the autonomy of culture—has been more widely acknowledged. *Partisan Review*, which maintained a dogged sympathy for the uprisings of the 1960s, was undone by that turbulent decade without even knowing it.

"The counterculture discredited the intellectual vocation," says Hilton Kramer, who gave up his job as chief art critic of *The New York Times* in 1982 to found *The New Criterion*, a small-circulation magazine devoted to cultural criticism. "It was their assault on the whole enterprise of high culture that created the polarity between serious criticism on the one hand and advocacy journalism on the other." For Kramer, the Vietnam protests of the 1960s represented an attack on authority, a subversion of civilized values. "We are still living in the aftermath of the insidious assault on mind that was one of the most repulsive features of the radical movement of the '60s," he declared in one of *The New Criterion*'s early editorials. In Kramer's view, "the leftward turn in our political life" went unchallenged by intellectuals—worse, went unacknowledged—even though that leftward turn proved a threat to their own authority.

Norman Podhoretz, the editor of *Commentary*, concurs. "You have to remember that the older group around *Partisan Review* had a real passion for literature," he says. "It was really the central activity in those days." Podhoretz himself started out as a literary critic. His early appraisals of John Updike, Mary McCarthy and Saul Bellow were as controversial in the 1950s and early '60s as his neoconservative political writings are today. But culture was "politicized" during the '60s, Podhoretz argues; the energies that had gone into literature were diverted to political and social issues.

In 1952, Harvard sociologist Daniel Bell recalls in *Partisan Review*'s 50th-anniversary issue, the timid suggestion ventured in the magazine's symposium on "Our Country and Our Culture" that intellectuals had grown weary of their alienation from American life was met with "astonishment, incredulity and even outrage." Three decades later, Bell notes an opposite phenomenon: a class of intellectuals "for whom the affirmation of America and capitalism has become the ground of their existence, and for whom criticism of America is an affront."

Despite modest circulations, the neoconservative journals—such as *The Public Interest*, *Commentary*, *The New Criterion*—are highly influential, both in government and cultural circles. "The neocons are the real heirs of the New York intellectuals," says Paul Berman, a young Marxist literary critic. "They're the ones who still believe in the power of ideas—the conviction that if you can get the analysis of society straight, you'll accomplish great things."

What the neoconservatives have on their side, apart from the general spirit of the times, is a consensus about issues—or at least a sense of what the issues are. "There's no equivalent on the Left today to what the Communist Party meant for intellectuals in the '30s," says Greil Marcus, a cultural critic and former contributor to *Rolling Stone*. "It was the great unifying issue"—no matter which side you were on. The belief among intellectuals on the Left that a socialist revolution could happen in America is gone from the little magazines. Radical theory has been largely consigned to specialist journals published out of universities. Politics now is largely the provenance of contributors to the neoconservative journals—whom Leon Wieseltier, the literary editor of *The New Republic*, calls "policy intellectuals."

So influential are the neoconservatives today that they even have disciples. The youthful contributors to Hilton Kramer's magazine—Bruce Bawer, Mimi Kramer, Roger Kimball—are still in their 20's, but they manage to sound like the imperious British critic F.R. Leavis. Their articles are full of lofty pronouncements about "moral values," "the crisis in the humanities," "the significance of art." Their mission is to defend American culture against shoddy merchandise, and they don't shirk from the task.

Podhoretz, too, has a roster of articulate young contributors—including Steven C. Munson and Roger Kaplan, Nick Eberstadt and Daniel Pipes. And he has a considerable following on campus; students write papers and dissertations on his work. But the neoconservative influence is deceptive, cautions Podhoretz. New York intellectual life is still under the thumb of what he calls "the dominant liberal culture," largely the crowd associated with *The New York Review of Books*, long a vociferous opponent of U.S. government domestic and foreign policy. Though it has become somewhat staid of late, concentrating more on *belles lettres* than on politics, *The New York Review of Books* is still anathema to the neoconservatives. Despite its unremitting seriousness, its willingness to publish long academic essays by eminent scholars, the magazine takes a tolerant view of the 1960s, and of the culture that came out of that decade. Its editors, Robert Silvers and Barbara Epstein, have never hesitated to publish James Wolcott on a rock group, the Rolling Stones, beside an essay by John Kenneth Galbraith on Keynesian economics, or Susan Sontag on photography beside a review of books about Watteau.

Sontag's sympathy with new developments on the cultural scene, her openness to film, popular music and pop art, epitomizes for neoconservatives the trendiness of the Left, its promiscuous embrace of the new. In dismissing the crucial distinction between "high" and "low" art, Sontag was undermining the basic authority of criticism. Her heresy was to suggest

Mimi Kramer

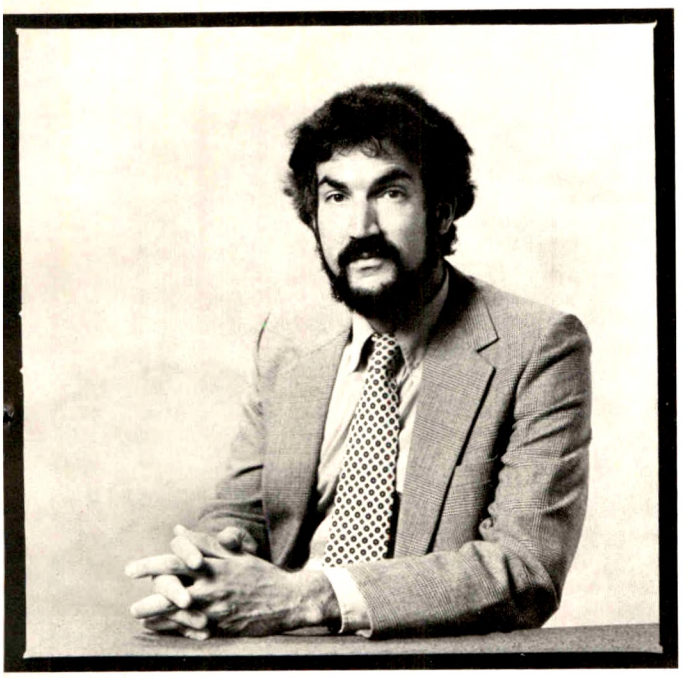
So influential are the neoconservatives today that they even have a roster of articulate young disciples whose mission is to defend American culture.

Photographs by Christopher Little © 1986

Roger Kimball

Bruce Bawer

Daniel Pipes



Roger Kaplan

Nick Eberstadt

Steven C. Munson

that high culture wasn't the only culture worthy of appreciation.

This supposition goes to the heart of the difference between the heyday of *Partisan Review* and now. It would never have occurred to the old New York intellectuals to challenge the distinction between the high culture and mass culture—Broadway theater, movies, best sellers, popular music. You could go to the movies, or even become a movie critic like James Agee, Delmore Schwartz and Dwight Macdonald. But, with a few classic exceptions, you couldn't make any claims for them as art. Everything was judged by the same intransigent standard: it either was art or it wasn't. Works that were popular but serious, that occupied the middle ground—what Macdonald termed "Midcult"—posed a threat to the sanctity of high culture. "The danger," Macdonald warned in a well-known essay, "Masscult and Midcult," "is that the values of Midcult, instead of being transitional—'the price of progress'—may now themselves become a debased, permanent standard."

What unites the intellectuals of the older generation, both of the Left and of the Right, is their suspicion of popular culture. Most intellectuals—or let's just say critics—of my generation [now in their 30's] aren't interested in the difference between Stravinsky and the art-rock group Talking Heads.

Today the rock critic Robert Christgau writes in *The Village Voice* on Marxist critic Raymond Williams; Leon Wieseltier writes in *Vanity Fair* on rock phenomenon Prince; Mark Crispin Miller, an assistant professor of the writing seminars at Johns Hopkins University, writes on Elvis Presley in *The New York Review of Books*. Greil Marcus is at work on a book about dada, punk rock and "some very obscure French cultural revolutionaries, with a few medieval heretics thrown in." For Marcus, one of the most influential pronouncements of the 1960s was Christgau's insistence that any definition of a great artist that couldn't include seminal rock-and-roller Chuck Berry as well as Proust was worthless. If it's interesting, if it works, it's good.

Why have so many younger critics dispensed with this once crucial distinction? Diana Trilling blames television, "the great leveler." Hilton Kramer blames the media, which have "appropriated the symbols, vocabulary and rhetorical strategies of high culture" while disdaining high culture itself. William Barrett blames a lot of things: the decline of religion, the campus turmoil of the '60s and "the squalid atmosphere of permissiveness" it ushered in, the transformation of psychoanalysis from a theory of human nature to an excuse for liberation from societal constraints. Others blame the decline in literacy. "Just to have read a lot of books makes one old-fashioned," complains Sontag.

The old New York intellectuals would never challenge the distinctions between high and mass culture.

For the old school of New York intellectuals, the life of the mind was paramount; it made them what they were. "I read as if books would fill my every gap, remedy every flaw, let me at last into the great world that was anything out of Brownsville," Alfred Kazin recalled in his memoir *A Walker in the City*.

You didn't have to be Jewish to be a New York intellectual—Macdonald, William Barrett and Mary McCarthy come instantly to mind—but it helped. Novelist and critic Elizabeth Hardwick, who was born in Kentucky, has often claimed that she came to New York in order to be a Jewish intellectual. Barrett describes in *The Truants* an atmosphere so "pervasively Jewish" that he tended to forget he was "not a Jew after all."

If Jews became free-lance intellectuals, it wasn't necessarily by choice. The English departments of universities weren't open to them in the 1930s and '40s. By the end of the 1950s, though, the once subversive group of novelists and critics loosely gathered around *Partisan Review* were members of society; they were in good standing. In 1953, Bellow could begin *The Adventures of Augie March* with the declaration: "I am an American, Chicago-born." Not a Jew. An American.

By and large, the 1960s were a comfortable decade for the New York intellectuals. There was money to be had from publishers; the large-circulation magazines once disdained as middlebrow were now hospitable to highbrows. "For better or worse, most writers no longer accept alienation as the artist's fate in America," the editors of *Partisan Review* announced in 1952. "On the contrary, they want very much to be a part of American life." And by the 1960s, they were.

The New York intellectuals had a significant influence on the literary culture. They promoted the great European modernists; they produced definitive essays on the poets and novelists of their own time; above all, they established the seriousness of the intellectual enterprise—united, in Lionel Trilling's words, "the activity of politics...with the imagination under the aspect of mind."

It was the intensity, that sense of high purpose, that fascinated me when I pored over back issues of the magazine. For all their squabbling and cultural parochialism, the contributors to the old *Partisan Review* had a conviction about the importance of literature that transcended ideological debate. There was something almost priestly in their approach to books. They saw themselves as inheritors of a tradition, devoted to the canon of high culture—not only their own culture, but the culture reflected in English poetry, in the Russian novel, in French political theory.

It's easy to be nostalgic about a past one never knew. The literary-minded of my generation have created their own New York. The little magazines are fat with stories; a monthly poetry calendar lists enough readings to fill a poster-sized page. Browsing among the periodicals in my local bookshop, I never have any trouble finding articulate, engaging essays by writers in their 30's and 40's—and even a few in their 20's—for whom literature is a serious vocation. Culture, despite the obsequies of the old *Partisan Review* gang, is alive and well and living in New York.

Only what kind of culture is it? Not the one I thought I would find when I came to New York in the late 1970s

with a head full of images drawn from books. No intellectuals of my generation sat around like the poet in Bellow's *Humboldt's Gift*, talking far into the night about modernism and symbolism, Eliot and Rilke, Freud and Marx. Humboldt believed that "the only art intellectuals can be interested in is an art which celebrates the primacy of ideas," and so did I.

To be sure, there were plenty of ideas in the air; the younger critics and cultural journalists I encountered had read books, too. In their own way, they were just as literate as the old *Partisan Review* crowd. But there was no community dominating the scene the way the *Partisan Review* crowd had, no group of writers and critics who saw themselves—or were seen—as arbiters of taste, interpreters of culture, critics of society in the largest sense. There was no writer who commanded the authority that Alfred Kazin or Dwight Macdonald or Philip Rahv did in the 1940s.

How to account for the disappearance of this type? A different economy, for one thing. "No one can afford to be an intellectual anymore," says Leon Wieseltier. "The culture doesn't support it as a profession."

Because fewer writers can now afford to live in New York, the city has forfeited its claim to being the center of the literary world. "The strong new fiction being written in the hinterlands suggests that novelists of urban sensibility can no longer assume, as they have in recent decades, that theirs is the dominant voice in our literature," Robert Towers noted recently in *The New York Review of Books*. And the same holds true for essayists and critics, who supply the kind of interpretive discourse that literature needs in order to thrive.

How does a free-lance intellectual make a living today? By writing for general-interest magazines and newspapers. This is nothing new. Irving Howe was a book reviewer for *Time*; Alfred Kazin was a staff writer; James Agee reviewed films. But to work for the major media used to be considered mildly suspect; today it's a respectable occupation. The role of cultural arbiter once played by the little magazines has been taken over by general-circulation magazines and by *The New York Times*. Specialist scholars and free-lance journalists appear side by side in *The Times Book Review* as a matter of course. The coverage of cultural events and issues featured on *The Times*'s opinion page, in its magazine and on the daily culture pages plays a crucial role in intellectual life. In the 1940s, writers published in large-circulation magazines for the exposure; now they make a living at it, and appear in the little magazines to confirm their intellectual credentials. Literary journalism has become a profession in itself.

And yet the intellectual vocation—at least as I imagined it—is largely obsolete, an archaic profession; the intellectual has gone the way of the cobbler and the smithy. "Highbrowism is a form of philistinism," claims Robert Christgau, the rock critic. "It doesn't respond to new forms of art." Leon Wieseltier, whose own work bears the mark of a rigorous apprenticeship to the New York intellectuals, has little use for the distinction they made between high and low culture. "Its real purpose was to elevate themselves," he says, "to create the illusion of a cultural elite."

So where do you go if your idea of the good life is to read and write books? The university. Since the 1950s, intellectual life in the United States has been largely concentrated on the campus. The spread of higher education after World War II, when colleges expanded and state universities sprang up, meant larger faculties. Suddenly the New York intellectuals were in demand. Some—Lionel Trilling, Sidney Hook, the art critic Meyer Schapiro—were already established academics, but free-lance critics also found a ready welcome. Rahv went off to Brandeis; Bellow taught at Princeton and Bard before he moved back to the University of Chicago; Lionel Abel ended up at the State University of New York at Buffalo. Most of those who stayed were absorbed into the university system of New York City—a different world from the Greenwich Village society of *Partisan Review*.

For the generation that followed, the academic life was a natural career choice. There were jobs to be had; universities enjoyed considerable prestige; many campus environments were bucolic. And there was a new cultural phenomenon: writing programs. By the 1970s, hundreds of colleges and universities had them. Some of the best younger writers in America were clustered in remote, picturesque locales like Missoula, Montana, and Bennington, Vermont.

The predominance of universities in the nation's cultural life has just about done in the type of self-educated, sporadically well-read intellectual who flourished in the 1940s. The academy has become increasingly specialized. Some of the most influential English departments in the country—notably those of Johns Hopkins and Yale—are dominated by the arcane disciplines of structuralism and deconstructionism, modes of literary discourse imported from Europe and virtually inaccessible to the lay reader. The general, free-wheeling essay that was a favored genre of the New York intellectuals—the kind of essay, wrote Irving Howe, that ventured to " 'go beyond' its subject, toward some encompassing moral or social observation"—is nearly extinct. Instead of Philip Rahv on politics in the novels of Dostoyevsky or Irving Howe on Edith Wharton's antipathy to modernism, professors now publish papers—to cite a recent issue of *Raritan Review*—entitled "Henry James, Meaning and Unmeaning" or "Wittgenstein and Literary Theory."

Whether the neoconservatives are more influential than their ancestors is open to question; that they're now the dominant voice in American intellectual life isn't. Yet they perceive themselves as a beleaguered minority. And, in a way, they are—though not in the world at large, where intellectuals have always been a minority, nor in their own, more rarefied world, where they have considerable influence. What *is* at issue here is the disappearance of the intellectual as a type, a class, a profession, an elite. For the old New York intellectuals, high culture was more than a category; it was a belief. "These were the ideas I grew up with," Hilton Kramer says, recalling the days when "to write serious criticism meant something in our society." To have come so far, and to see the vocation that represented the dream of one's youth in danger of extinction is a bitter thing indeed. ♦

THEODORE DREISER: A REAPPRAISAL

By Nathan Glick

Theodore Dreiser's two masterpieces—Sister Carrie *(1900) and* An American Tragedy *(1925)—are widely read and taught today, yet Dreiser has always held a hotly debated position in the canon of American literature. In a recent essay literary biographer Justin Kaplan raises the central question about Dreiser's novels. "How could his rough craft, his apparent impatience with stylistic force, grace and nuance, be reconciled with his undeniable power to move and persuade, his astonishing ability to render the underside of American life, his Sophoclean vision and passion?"*

In this essay Nathan Glick examines current critical attitudes toward Dreiser and suggests why his best work will endure. Editor of Dialogue *during its first dozen years of publication, Glick has written on American literature for* Encounter, The New Leader *and other journals.*

During his lifetime, Theodore Dreiser was the most controversial of American novelists, dividing both critics and readers into passionate opposing camps. His novels were hailed by some as giant works of pathbreaking realism, and denounced by others as assaults against morality and individual responsibility. Since Dreiser's death in 1945, a torrent of books and articles have tried to estimate his true stature. Was he a writer of clumsy prose who created characters driven by vagrant impulses that made them impervious to moral judgment? Or was he a major artist in the mold of Balzac, Zola and Tolstoy?

We may be still too close in time to Dreiser to pronounce a definitive verdict. But there can be no doubt as to the enormous influence his work has had in broadening the subject matter considered acceptable for American novelists. Nor can there be any doubt that his novels remain a looming presence in American fiction, an achievement against which contemporary writers are often measured. The recent widely discussed publication of the original unedited manuscript of *Sister Carrie* is only one of many signs of Dreiser's increasingly secure place in the literary pantheon. In the last several years a new edition of his second novel (*Jennie Gerhardt*), an unfinished autobiographical novel (*An Amateur Laborer*) and his diaries have appeared in print. "Judging from the interest in his papers at the University of Pennsylvania," says *The New York Times*, "[Dreiser] is becoming something of a scholarly industry."

Part of the reason for his continuing appeal is that in his best novels Dreiser explored crucial aspects of the real world that had been missing or neglected in American fiction before he came on the scene: the siren lures of the big city, the complex machinations of high finance, unorthodox relationships between men and women, and the unpredictable consequences of driving ambition. Simply to have opened up the American novel to a new level of honesty, at the heavy cost Dreiser paid of denunciation and calumny, would in itself have been a heroic achievement. But what gives Dreiser's work, at its best, the stature of powerful art is "the gesture of pity, the note of awe, the profound sense of wonder." So wrote H.L. Mencken, the most irreverent and erudite essayist of his day, who became Dreiser's strongest advocate against an army of detractors.

It is this double vision—the newspaper reporter's objectivity, on the one hand, and the artist's constant astonishment at the world's odd workings, on the other, the counterpoint between massed facts and philosophical brooding—that makes Dreiser stand out from contemporaries who were better educated, more polished in style, more steeped in literary tradition. As critic Alfred Kazin has put it, Dreiser lacked every quality but genius.

One crucial aspect of his genius was an innocence of spirit, a puzzled curiosity about motive and behavior. Always searching for some intellectual certainty, Dreiser thought at first that he had found the answer in literary naturalism—particularly the idea that an individual's behavior was determined by uncontrollable biological or physical forces, a notion he picked up from the Darwinian-influenced social philosophers of the period. But in the end he confessed: "I catch no meaning from all I have seen, and pass quite

as I came, confused and dismayed." His novels offer no coherent philosophy, no consistent criticism of society, only a dogged and often successful attempt to portray the world he knew in all its rawness and confusion.

A large and stirring part of that world consisted of the cities he came to know intimately first as a young reporter in Chicago, later as a highly paid editor in New York. "Would that I might sense it all again," Dreiser reminisced many years later, "the throb and urge and sting of my first days in Chicago!" *Sister Carrie*, more than any other of his novels, captures Dreiser's passionate response to Chicago as filtered through the passive personality of Caroline ("Carrie") Meeber, "eighteen years of age, bright, timid, and full of the illusions of ignorance and youth." Very early in the novel, as a train takes the heroine from her small midwestern village to Chicago, Dreiser warns: "The city has its cunning wiles, no less than the infinitely smaller and more human tempter....The gleam of a thousand lights is often as effective as the persuasive light in a wooing and fascinating eye."

And indeed Carrie soon submits to the human tempter, not out of sensual passion, but in order to taste the fruits offered by the larger tempter, the "wonderful, vast" city where people dress magnificently and ride in carriages. Repelled by the drudgery of factory work, yet unwilling to leave Chicago with its promise of "wealth, fashion, ease," Carrie becomes the mistress first of Charles Drouet, a self-indulgent traveling salesman, then of George Hurstwood, the suave, ingratiating manager of a fashionable "saloon" patronized by merchants, politicians and actors.

Although Dreiser shared Carrie's glamorous image of the city, as a newspaperman he also knew its less attractive side, its indifference to losers, its often distorted values—especially its acceptance of facade in place of substance. Dreiser is remarkable, among male novelists, for his detailed rendering of the style and quality of clothing and for his depiction of the way people are judged by what they wear. Carrie, for example, notes that Hurstwood's shoes of soft black calf are superior to Drouet's shiny patent leather, and this observation, among others of a similar character, makes her more amenable to Hurstwood's courtship. When the saloon manager almost inadvertently takes $10,000 from his employer's safe and flees with Carrie to New York, his gradual disintegration is symbolized by his growing indifference to clothing. Hurstwood is a man who lives on appearances, whose past success depended on a certain elegance of dress and manner, on an effect of easy self-confidence.

In the Chicago of the 1880s, a great booming city with raw outer edges jostling the harsh prairie, Hurstwood's gift of style and tact was rare enough to give him distinction in his work. But in New York he is a provincial, overwhelmed by the sheer numbers of men with wealth or celebrity. Cut off from friends and familiars, lacking dignified employment, Hurstwood comes to feel insignificant and hopeless. At the end of the novel, he is a pathetic, shabby, shuffling outcast who commits suicide by turning on the gas in a cheap rooming house.

Carrie, by contrast, finds New York stimulating and responsive to her own maturing charms. The description of her first walk down Broadway achieves its intoxicating effect through cumulative detail in the manner of Balzac, Dreiser's idol.

> With a start she awoke to find that she was in fashion's crowd, on parade in a show place—and such a show place! Jewellers' windows gleamed along the path with remarkable frequency. Florist shops, furriers, haberdashers, confectioners—all followed in rapid succession....Coachmen in tan boots, white tights, and blue jackets waited obsequiously for the mistresses of carriages who were shopping inside. The whole street bore the flavor of riches and show, and Carrie felt that she was not of it....At the same time, she longed to feel the delight of parading here as an equal. Ah, then she would be happy!

Carrie does in fact, through her success in New York's musical theater, find herself wealthy enough to parade along Broadway on an equal basis with those she once admired from what seemed a vast social distance. Yet she is not happy as she imagined she would be. Dreiser nowhere says explicitly why Carrie should be unhappy. The reason, clearly, is not obligatory remorse for her liaisons with Drouet and Hurstwood, since she has never shown guilt or regret. A moralist, while admitting that Carrie is not evil in any malicious sense, might note her lack of any clear sense of ethical values, her readiness to drift with the most immediately comfortable current. In the final pages of the novel, however, Dreiser offers a more poetic explanation of Carrie's discontent: a sweeping pessimism based, one suspects, on his own unfulfilled youthful yearning. "Oh, Carrie, Carrie! Oh, blind strivings of the human heart!...In your rocking-chair, by your window, shall you dream of such happiness as you may never feel." Reviewing the new edition of *Sister Carrie*, contemporary novelist E.L. Doctorow asks: "Where did this first novelist find the wisdom and voice of an elder to detect the insatiable longing that characterizes the American soul?"

Despite Dreiser's infelicities of style and simplistic meditations on life, and despite his heroine's inchoate character, *Sister Carrie* is read today for its meticulous observation of social behavior and for its historic effort to convey truthfully some of the elemental emo-

tions that the more popular "literary" novelists of the day tended to avoid.

Dreiser's second novel, *Jennie Gerhardt*, is also about a passive young working-class woman whose life has centered around two unsanctified liaisons. But there is a world of difference between Carrie and Jennie. Carrie's personality was drawn from Dreiser himself as well as from an impetuous, self-centered sister. Jennie's character, by contrast, is based on Dreiser's mother, a patient, affectionate, selfless woman who held her large family together during the frequent hard times of Dreiser's youth. Unlike Carrie, Jennie willingly sacrifices herself for the men in her life, going so far as to encourage her wealthy lover to marry a more suitable upper-class wife. Unlike Carrie, Jennie achieves a modicum of contentment as a daughter and a mother despite her lack of worldly success. *Jennie Gerhardt* is the favorite Dreiser novel of many readers and some literary critics because it is the only one in which the author's softer side, not his characteristically bleak and Olympian outlook, suffuses the narrative.

In his next two novels, *The Financier* (1912) and *The Titan* (1914), Dreiser leaves behind his lower-class "fallen women," weaklings tossed about by society's currents, and chooses instead a hero of an entirely different mold. Frank Cowperwood is fearless, immensely capable, crafty and amoral, and interested mainly in the power that great wealth brings. Modeled upon Charles T. Yerkes, a financial wizard who took control of streetcars in Philadelphia and Chicago and almost succeeded in doing the same in London, Cowperwood reflected Dreiser's admiration for Nietzsche's "superman," "the significant individual [who] will always do what his instincts tell him to do."

With these two volumes of his planned "Trilogy of Desire"—the final and least interesting segment, *The Stoic*, was published posthumously in 1947—Dreiser became the first American novelist to write precisely and powerfully about the sudden explosion of finance and industry at the turn of the century. This was Mark Twain's "Gilded Age," when the great American fortunes were amassed, when the sometimes unscrupulous giants of business built railroads, made steel the basis of modern industry, invented the automobile, and expanded the oil industry. Dreiser in his later years came to be known as a supporter of radical and working-class causes, but he confessed in one of his many autobiographical works that he would have liked to emulate the Cowperwoods of this world: "To be president or vice-president of something, some great thrashing business of some kind. Great God, how sublime it seemed." So while the novelist assiduously records the devious ways in which Frank Cowperwood builds his fortune, he also admires the financier's boldness, his lack of illusions and the contribution such ruthless buccaneers of industry made to democratic society by producing goods cheaply and efficiently. Businessmen, he believed, were often predators, but on the whole they "have been a blessing to the rest of us....It's because of Vanderbilt that we can now ride to Chicago in 18 hours. It's because of Rockefeller that we can get oil at the present price....America is great not because of, but in spite of, her pieties and moralities."

Dreiser knew and used the writings of the "muckrakers," the journalists of his day who wrote exposés of the seamier side of business and politics. But unlike the muckrakers, he did not view his novels as an instrument of reform. He simply wanted to clear the air of hypocrisy and confront the reading public with the complex realities of modern business. Like Balzac, he was fascinated by the way things are done: the tactics used to move up on the social scale, the intricate dealings of the stock market, the passion and effort and manipulation that go into high finance. In Frank Cowperwood, Dreiser created an almost mythical portrait of the self-confident, instinctively shrewd, modern entrepreneur. *The Financier* could serve as a handbook on how to make a fortune on the stock market, how to use political contacts to advance one's interests and how to survive legal disaster—Cowperwood serves a year's term in prison for the improper use of public funds and then recoups his losses with a brilliantly timed financial stratagem.

The Titan moves from Philadelphia to Chicago, where Cowperwood's many financial triumphs parallel his amatory conquests. In these affairs, the hero reflects Dreiser's own attitude, which the writer liked to call "varietism," the male's need (as Dreiser saw it) for many sexual partners and his resistance to permanent attachments. As in business so too in romantic affairs—Dreiser rejected conventional morality as hypocritical and cowardly, a sign of the weakness that he feared to find in himself and that he often treated contemptuously in his fiction. At the close of *The Titan*, Cowperwood is defeated by public opinion (and his financial competitors) in his effort to obtain a 50-year lease on Chicago's streetcars. But he does win the brilliant young woman who has intrigued him for several years. In this private victory, contrasted to Cowperwood's public defeat, Dreiser sees an "equation inevitable," as he put it in an essay so titled—that is, the world's natural cyclical movement toward balance, "wherein the mass subdues the individual or the individual the mass—for the time being. For behold, the sea is ever dancing or raging."

This Olympian view, applied with almost jaunty optimism to one of nature's supermen, becomes a somber pessimistic doctrine when applied to the morally weak Clyde Griffiths in *An American Tragedy*. Raised by parents who are street-corner revivalists in Kansas City, Clyde's dominant impulse is to escape

the dreary oddness of their life. He wants what Dreiser regards as the dream of the young American male: excitement, female companionship and, most of all, worldly success. At his first job as a bellboy in a fancy hotel, Clyde is both impressed by and envious of the well-to-do guests, "all so fashionably dressed, all so ruddy and contented looking....This, then, was what it meant to be rich. It meant that you did what you pleased. That other people, like himself, waited upon you."

By a lucky accident—and for Dreiser life is essentially a series of unplanned, unconnected accidents—Clyde meets his one rich uncle, the owner of a collar factory in upstate New York, and is offered a supervisory job with possibilities of advancement. At first neglected by his uncle's family, who worry that his lack of formal education and middle-class rearing may damage their reputation in town, Clyde has an affair with Roberta Alden, one of the workers in his department. Just when his relatives have relented and he is accepted by the town's upper crust, with the prospect of marriage to a beautiful rich girl, Roberta tells him that she is pregnant and that he must marry her.

Unable to find a doctor who will perform an abortion, Clyde decides in desperation to kill Roberta by staging an accidental drowning from a rowboat, rather than give up his chance for wealth and status now so temptingly dangled before him. Although his moral sense is feeble, it is sufficiently latent to cause him to change his mind at the last minute. But when Roberta rises to approach Clyde, she overturns the boat and falls into the lake. As she is drowning, Clyde makes no effort to rescue her, instead swims to shore and tries ineptly to hide any traces of his presence.

The final third of this long novel deals with Clyde's capture, trial and preparation for execution. It is this section that has aroused the greatest interest and controversy. By showing that the local sheriffs, the prosecuting district attorney, and various lawyers and politicians were using the case to advance their own interests, Dreiser deflects attention from Clyde's guilt and responsibility. He seems to be arguing that the motives of the established authorities are as mixed and often as self-deceptive as Clyde's. But then he goes on to imply something even more disturbing to traditional ideas of justice: that because Clyde's early years had been so deprived and his culture's material values so powerful, society was more to blame than Clyde himself for his clumsy, tragically destructive behavior.

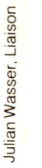
Most thoughtful readers would reject Dreiser's implied arguments against individual responsibility for one's actions, since they deny free will and overlook the countless other "deprived" individuals who do not contemplate murders to fulfill their dreams. But even those readers may admire *An American Tragedy* for the unprecedented richness of detail with which it portrays life among the lower ranks of the social order, and for the rare combination of objectivity and emotional fervor in the narrative voice. Apart from John Dos Passos's later trilogy, *U.S.A.*, no other major work of American fiction has encompassed so wide-ranging a social landscape.

The critical debate in recent years over Dreiser's literary merit, however, does not center on the social theories or attitudes expressed in *An American Tragedy*. Nor does it concern his once notorious frankness in sexual matters, which today's readers may well find mild or even reticent. Even his awkward prose style is seen as a minor cavil by some critics: partisans like H.L. Mencken, who refers to Dreiser's "predominantly viscous writing," and Saul Bellow, who speaks of Dreiser's "masses of words, verbal approximations," concede the point. The most telling criticism of Dreiser was made by the late Lionel Trilling, a moral and intellectual critic of subtle power. Trilling located Dreiser's fatal flaws in his ideas; their primitive inconsistency permitted him to move, without apparent internal struggle, from a vague moral nihilism in his youth and middle years to an equally vague religious pietism in old age. For Trilling greatness in literature must in some way reflect and embody a superior quality of intellect and sensibility.

To this impressive criticism, Saul Bellow—perhaps America's most intellectual novelist and an admirer of Trilling—replies that Dreiser "was rich in a kind of feeling that every human being intuitively recognizes as primary....He somehow conveys, without much refinement, depths of feeling that we usually associate with Balzac or Shakespeare." Bellow concedes that Dreiser was "clumsy, cumbersome, and in some respects a poor thinker," but adds that if he blunders, it is "generally in the direction of truth."

I believe that Bellow's judgment will prevail, that the mind that created Dreiser's best work was more complex than some of his simplistic formulations would suggest. The powerful impact of his books testifies to a rare and intense vein of empathy with individuals from every level of life. His publisher, Donald Friede, tells of accompanying Dreiser to a stage version of *An American Tragedy*. Through it Dreiser sat immobile, absolutely silent, until at the end he turned to Friede with tears in his eyes, saying, "The poor boy! The poor bastard! What a shame!" Theodore Dreiser may have written, and thought he believed, that the world was simply an indifferent mechanism, that life held no meaning. But he responded in his novels as in his life with a kind of overwhelming, unmediated emotion that more sophisticated and artful writers would have found embarrassing, but that millions of readers have recognized as their own. ♦

An Interview with JACK NICHOLSON



From FILM COMMENT

After a decade of low-budget films, Jack Nicholson achieved movie stardom in 1969 with the unheralded hit Easy Rider. *Since then, he has created a variety of menacing yet oddly sympathetic characters in such movies as* Chinatown, One Flew Over the Cuckoo's Nest *and* The Shining. *Unlike many stars, Nicholson has never sought a glamorous screen image or insisted on leading roles. In fact, in* Terms of Endearment *(1983) he played a seedy, out-of-shape astronaut, yet he won all major movie awards for supporting actor.*

This risk-taking independence is evident throughout Nicholson's long movie career, in his directing and screenwriting as well as his acting. As the producer of his recent film, Prizzi's Honor, *says, "He is prepared to do whatever the part requires, and anything he does becomes in itself interesting." Here, Nicholson talks with journalist and screenwriter Beverly Walker about the challenges inherent in Hollywood filmmaking.*

Tell me about your beginnings.

I got out of school [in New Jersey] a year early, and though I could've worked my way through college, I decided I didn't want to do that. I came to California where my only other relatives were; and since I wanted to see movie stars, I got a job at MGM, as an office boy in the cartoon program. For a couple of years I saw movie stars, and then I was nudged into a talent program. From there I went to the Players Ring Theatre, one of the little theaters in Los Angeles at the time. I went to one acting class before I was taken to Jeff Corey's class.

Up until then I hadn't cared about much but sports and girls and *looking* at movies—stuff you do when you're 17 or 18. But Jeff Corey's method of working opened me up to a whole area of study. Acting is life study, and Corey's classes got me into looking at life as—I'm still hesitant to say—an artist. They opened up people, literature. I met loads of people I still work with. From that point on, I have mainly been interested in acting. I think it's a great job, a fine way to live your life.

What was your first professional engagement?

Tea and Sympathy at the Players Ring. I made $14 a week. During the run I got my first agent, as well as some work on *Matinee Theatre*, a live TV daytime drama.

Of course I tried to keep my day job during this period, but they closed the MGM cartoon department on me. During the interim between jobs, I got a part in a play downtown. At the time, the only professional theaters in Los Angeles were road companies, but there were a lot of little theaters where you were paid about $20 a week. However, in this theater there were too many seats, and it couldn't come under a little-theater contract, so I was paid $75 a week.

While I was doing this, I got the lead in my first movie, *Cry Baby Killer* [1958]. Jeff Corey recommended me. I read for it just like every other actor in town. I screamed and yelled—I know I gave the loudest reading, if not the best. And when I got the part I thought: "This is it! I'm made for this profession." Then I didn't work for a year.

Still, it seems that you didn't have too difficult a time getting started.

But what I'm talking about covers a three-year period. For the next few years I got a couple or three jobs a year, mostly with [low-budget producer] Roger Corman, and one or two TV shows. My problem in those days was that I didn't get many interviews. I always got a very good percentage of the jobs I went up for, but the opportunities were few and far between.

It's been said that you gave yourself 10 years to become a star. Is that true?

No. Corey taught that good actors were meant to absorb life, and that's what I was trying to do. This was the era of the Beat Generation and West Coast jazz and staying up all night on Venice Beach. That was as important as getting jobs, or so it seemed at the time.

At the beginning, you're very idealistically inclined toward the art of the thing. Or you don't stick because there's no money in it. And I've always understood money; it's not a big mystical thing to me. I say this by way of underlining that it was *then* and is *still* the art of acting that is the wellspring for me.

In that theoretical period of my life I began to think that the finest modern writer was the screen actor. This was in the spirit of the '50s where a very antiliterary literature was emerging. I kind of believed what Nietzsche said, that nothing not written in your blood is worth reading; it's just more

pollution of the airwaves. If you're going to write, write one poem all your life, let nobody read it, and then burn it. This is very young thinking, I confess, but it is the seminal part of my life. This was the collage period in painting, the influence of Duchamp and others. The idea of not building monuments was very strong among idealistic people. I knew film deteriorated. Through all these permutations and youthful poetry, I came to believe that the film actor was the great "litterateur" of his time. I think I know what I meant....

The quality of acting in L.A. theater then was very high because of the tremendous number of actors who were flying back and forth between the East Coast and Hollywood. You could see anybody—anybody who wasn't a star—in theaters with 80 seats. But it always bothered me when people came off stage and were told how great they were. They weren't, really, in my opinion. It was then I started thinking that, contrary to conventional wisdom, film was the artful medium for the actor, not the stage.

The stage has a certain discipline. But the ultimate standard is more exacting in film, because you have to see yourself—and you are your own toughest critic. I did not want to be coming off the stage at the mercy of what somebody else told me I did.

Did you develop any concise image of yourself as an actor? Leading man? Young character actor? And how did your awareness of yourself as a potential commercial commodity square with your antistructure bias?

I never thought in terms of typing myself, because I wasn't that successful. After an actor has done a few pieces of work, his naiveté is the part of the craft he has to nurture most. You don't want to know it all as an actor because you'll be flat. As a means of supporting that experiential element in film, once I begin to work on a particular movie I consider myself to be the tool of the director.

At about that same time, I had started writing—first with Don Devlin and then with Monte Hellman. I thought of myself as part of the general filmmaking effort. And as my scope broadened, I began to think about directing. I wanted to be the guy who got to say whether the dress is red or blue. I'd still like to make those ultimate decisions. It's like action painting. It's not a question of right or wrong about red or blue, but that only one guy gets to say it—and if you don't get to, you're doing something else. The craft of acting interfaces with this idea.

As an actor, I want to give in to the collaboration with the director because I don't want my work to be all the same. The more this can be done with comfort, the more variety my work has had. I think this is inherent to the actors' craft. It is a chosen theoretical point of departure.

That's a very European attitude.

That's why I've worked with more European directors than the average actor has. They somehow understand that this is where I am coming from. And I'm not doing it to get employment. I'm doing it because I just know that sameness, repetition and conceptualizing are the acting craft's adversaries, and it seems more intelligent to start off within a framework where those things are, to some degree, taken out of your hands. That doesn't mean I don't exercise my own taste, criteria and forms of self-censorship; but those elements have to do with who I choose to work with, on what and how it relates to the moment I start and finish. All those factors come into play, but they come into play *before* the action of acting.

Once you've started a film you don't become a wet noodle. You must have that conflictual interface because you don't know, and they don't know. It's through conflict that you come out with something that might be different, better than either of you thought to begin with.

There is one thing I know about creative conflict: once my argument is exhausted, I am not going to be unhappy—whether it moves in my direction or away. That's what the structure does for you. In the real world there's an aftereffect of disappointment if you lose an argument. But if, to begin with, you're set up *not* to have this particular autonomy, then you're not disappointed.

I have never felt brutalized as an actor. Many actors do, sometimes, but I've never had that experience. If I'm not happy with the balance, I just won't work with that person again.

You obviously saw *Easy Rider* [1969] before knowing the critical and public response. Did you have any clue it would become such a hit?

Yes, a clue. Because of my background with Roger Corman, I knew that my last motorcycle movie had done $6 to $8 million from a budget of less than half a million. I thought the moment for the biker film had come, especially if the genre was moved one step away from exploitation toward some kind of literary quality. After all, I was writing a script [*Head*] based on the theories of Marshall McLuhan, so I understood what the release of hybrid communications energy might mean. This was one of a dozen theoretical discussions I'd have every day because this was a very vital time for me and my contemporaries.

Did you think it would make you a star?

When I saw *Easy Rider*, I thought it was very good, but it wasn't until the screening at the Cannes Film Festival that I had an inkling of its powerful superstructural effect upon the public. In fact, up to that moment I had been thinking more about directing, and I had a commitment to do one of several things I was interested in. Which I did. Immediately after *Easy Rider*, I directed *Drive, He Said*.

But at Cannes my thinking changed. I'd been there before, and I understood the audience and its relative amplitudes. I believe I was one of the few people sitting in that audience who understood what was happening. I thought, "This is it. I'm back into acting now. I'm a movie star."

Kobal Collection

In *Easy Rider*, 1969

In *Five Easy Pieces*, 1970

Kobal Collection

You really said that to yourself: "I'm a movie star."

Yep. It was primarily because of the audience's response.

How did it feel to wake up the next morning and know definitively that your life had changed—in terms of financial security, creative options?

It didn't happen quite that way—in one big zap. I felt on a big upswing before I arrived in Cannes. The screening there was part of a feeling that things were going well for me. Oh, I got an enormous rush in the theater. It was what you could call an uncanny experience, a cataclysmic moment. But you must understand that the other actors were there. We were in the boat together, so I didn't feel the success pointed so singularly at myself.

So I didn't wake up saying, "Gee, my life is going to be different." I still don't wake up that way. I don't leap too easily to results. I'm very suspicious and wary in my way, and still get stung by people who feel I shouldn't even be working. I always expect something horrible next.

Would you care to speculate on what the public responded to in your work?

It's hard for me to know. I wasn't a babe in the woods. I'd watched a lot of stars, from James Dean to Brando, and I'd seen everybody alive work at MGM. I had a certain old-timer's quality, even though I was young and new, and drew on what I believed before I made it.

You've got to be good at it, number one, and sustain it. There are no accidents. Any kind of sustained ability to go on working is because something is valid in the way you work. The star part is the commercial side of the business—and, frankly,

no one knows anything about that. The economic side is really statistical. It's not based on the fact they think you're going to do something good; it's because their economics tell them this is a very good capital-venture investment.

Why is it that certain people become icons for their culture?

Part of the answer is that I am reflective of an earlier audience who didn't find the movie conventions of their time entertaining any longer—who, frankly, found them quite repressive. These same conventions were shortly thereafter flung off by the society as a whole. And once you're rolling, you stay right there in a surf ride on that sociological curve. The minute your theoretical meanderings aren't valid, your work won't be well received.

For the actor, style comes last. You first have to implement the whole thing, but your style comes from the subconscious, which is the best part an actor brings to his work. These conscious ideas are only the springboard for what you hope will be the real meat from the unconscious.

Since *Easy Rider*, by what criteria do you select projects?

I look for a director with a script he likes a lot, but I'm probably after the directors more than anything. Because of the way the business is structured today, I have sometimes turned down scripts that I might otherwise have accepted had I known who was directing them.

You've taken more risks with subject matter, supporting roles or directors than any American star of recent memory. Is the director central in your taking risk?

Yes. There are many directors in the middle range who've made mostly successful pictures, and then there are a few great directors who've had some successes and some failures. I suppose my life would be smoother if I wasn't almost totally enamored of the latter category.

You've definitely been in the vanguard of people interested in serious films, films that made statements. If you'd been in New York in the '50s, instead of here [in California], your interest in European cinema and existentialist angst wouldn't have been so unusual. Where do you think your taste came from, and how did it develop?

I imagine that somewhere out in America right now is a guy looking at movies and saying: "I can't believe this. *Why are they making these movies?* All right, if it's a 'dog' picture, but don't pretend to be making this about me." That's where I think taste starts to get formed. The desire...

...not to be insulted.

Right. As far as European movies are concerned, Monte Hellman educated me a lot.

There was a period when I just wanted to make what I wanted to make, and I didn't care what lie I had to tell. The two westerns Monte and I made [*The Shooting* and *Ride in the Whirlwind*, 1965], for example. Roger Corman only financed them because we cheated him, in a way. We told him that one of them was a kind of western *African Queen* and the other a variation of *Fort Apache*. But what we delivered him were two very austere New Wave westerns, and he knew it. Fortunately, the budgets were such that he knew he couldn't lose more than he'd already paid for the scripts. You had to be a little bit of a pirate in those days.

The movies were very well received. They were good for Monte's reputation and they took me to Europe, where I met Godard and Rivette and all those other New Wave people. I think I was 26 at the time.

The late '60s were a great period in movies. I never dreamt it would change.

Boy, did it change. It's a pity. What seems to have happened is "they" started producing the student filmmaker. This, anyway, is what my begrudging nature tells me. The problem was that "they" were a little bit too green. At first "they" made interesting pictures which didn't make any money so "they" abandoned these for blockbuster city. Then a few years passed, and Steven Spielberg arrived like the final evolution. Filmmaking always changes. He is the top of the mountain of that particular thing, and that's good for me. For instance, the only script Steve and I have talked about is a very human story. I figure that anybody who's not a puppet and who's left standing in three or four years is going to be in a very good position.

What do you mean by "anybody who's not a puppet"?

You know, all those movies with little monsters and wingdings, buried treasure, cars that talk, jello from every orifice, and so forth.

Don't you think we're moving out of that phase?

That's what I'm trying to say. A few years from now, if you can still portray a human being, you'll be quite a valuable commodity. I intend to be there. It's where my hopes as a director lie.

I'd like to talk about you as a director. [Nicholson rises and starts to move away.] Are you leaving the room?

[Laughing] No, I'm just going to get a cigarette. Discussions of my directing always get me into trouble. I either have a fist fight or a heart attack.

Do you enjoy directing?

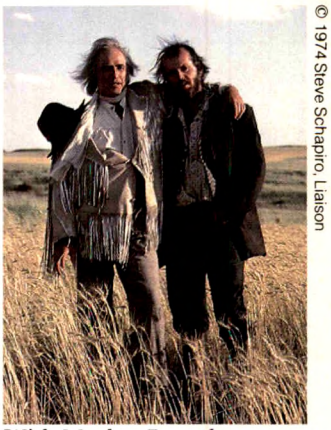
I love it.

Why?

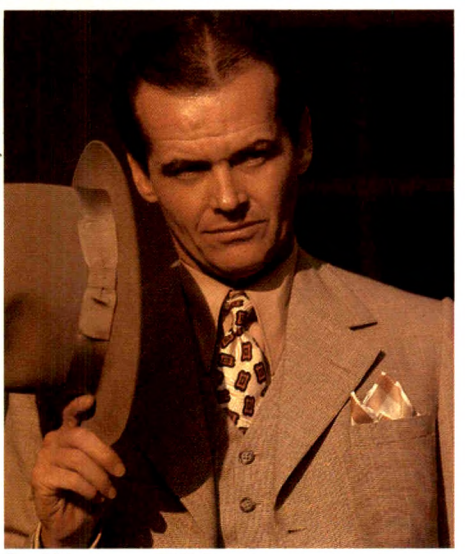
Let me put it this way: both as an actor and a viewer, what I look for in a director and a movie is vision. I wasn't mad about Roman's *Pirates* script, but because it's Roman [Polanski] I know it's going to be a great movie. Roman is top five; the same for Stanley [Kubrick] as well as John Huston. The imagery of a movie is where it's at, and that is based upon the director's vision.

Everybody's always talking about script. In actuality, cinema is that "other thing"; and unless you're after that, I'd just as soon be in the different

In *One Flew Over the Cuckoo's Nest*, 1974



With Marlon Brando in *The Missouri Breaks*, 1976



In *Chinatown*, 1974

medium. If it's going to be about script, let it be a play.

The quality of a scene is different if it's set in a phone booth or in an ice house, and the director has got to know when he wants one or the other. Scenes are different when the camera sits still or if it's running on a train. All these things are indigenous to the form.

There's someone I know who keeps a book of drawings made by guests to her home. She asks everyone to make a drawing with two elements of her choosing: a heart and a house. The wildest one in the book was made by Steven Spielberg, and it shows exactly why he's a great movie director. This is what he drew: a big paper heart as if it were a hoop, busted open, through which was coming a car pulling a trailer home behind it. Motion...movement...explosion are all there in that one little Rorschach of a drawing. Everybody in town's in that book. If I were the head of a studio and I looked through the book, I'd stop right there and say, "This boy here is a movie director."

So why do I want to direct? Well, I think I have special vision. If you ask anybody who was in college during the period of *Drive, He Said* [1971], they'll tell you it was *the* peer-group picture of the time. But it cost me because it was very critical of youth. I did not pander to them.

I'm very proud of my two movies, and I think they have something special. Otherwise, I have nothing to offer. I don't want to direct a movie as good as Antonioni, or Kubrick, or Polanski or whoever. I want it to be my own. I think I've got the seed of it and, what's more, that I can make movies that are different and informed by my taste. Since that's what I'm looking for when I'm in the other seat, I wonder why others aren't....Well, obviously because I make 'em a lot of money as an actor.

Have you had opportunities to direct if the movie included your starring in it?

Yes, but I don't want to be scattered. I prefer to approach a film full-scale. Take *Moon Trap* as an example. It's a western I've always wanted to make, and I still will, someday. When I started the screenplay—and that's nearly 10 years ago now—I said to the production company involved: "Don't make me spend my summer writing if the only way you'll make the movie is with me in it."

There are two parts in the picture, and they wanted me to play the younger part, which I felt a little too old for. But more than that, I had a list of

people I wanted to play that part. But the studio wouldn't go for it so I dropped the project. But since I own the material and I'm getting close enough to play the older part, I may still get to make it.

Have you been doing any other writing in recent years? The last credit I see on your filmography is for *Head* [1968].

I've contributed to other things, such as *Goin' South* [1978] and the scene on the bluff with my father in *Five Easy Pieces*. I love writing, but I stopped because I felt I was more effective approaching filmmaking from a different vantage point. At this moment, I suppose I can do more for a script as an actor than as a writer—in the film sense. I wrote right up to *Easy Rider*, at which time I became someone who could add fuel to a project as an actor. I've always approached film as a unit, but you have to work your own field.

Will you not direct again until you can do what you want, your way?

There's nothing I'd like more, creatively, than to make a film on, say, the tone of *My Old Sweetheart* by Susannah Moore. It's a tremendous first novel by someone I've known forever. If this were the period we keep talking about—the late '60s, early '70s—I could scheme that movie onto the screen. That, or [William Styron's] *Lie Down in Darkness*, or [Saul Bellow's] *Henderson the Rain King*.

But I can't guarantee how much money a movie based on any of that source material would make, and you can't mortgage your life for favors just to make one movie. In three or four years I can make the kind of movies I want to make. I'll still feel a little like a pirate. The center's always in the middle, but the studios will be a little bit less in that center lane than they are now.

I looked at what was released last summer. There was something about discovered pirate treasure, gnomes, reporters who keep old typewriters and pretend they're beach bums. There is all this stuff which I call an offshoot of student humor and preoccupation. Something has got to give. People don't go on liking the same things. Skirts go up and skirts go down.

That's why I went with *Terms of Endearment*. It was the most human script I'd read in years, and I just knew it would be successful. Why? Product difference. To a studio executive who's in a more intense flow, product difference looks like danger. But to someone like myself who is one step removed, that's what you're looking for.

That wave is going to break, believe me. A lot of good things will get made that haven't been done yet.

***Prizzi's Honor* was something of a family affair. Did you have any qualms about doing it?**

I had trepidations. I've always tried to do what was best and not what was convenient. The prepicture anxieties were very intense because the deal was difficult to make and the diplomacy of the situation quite complicated. But once it got rolling, it definitely had the flavor of a family project. That doesn't necessarily mean that it informs the doing of the film—other than that *Prizzi* is about a family. [Director] John Huston and [producer] John Foreman have been close for years, and I've been [Huston's daughter] Anjelica's boyfriend for quite a while. I knew John Huston even before I knew Anjelica, and I always wanted to work with him; we'd talked intermittently about different projects.

Once you started working with him, were there any surprises?

The biggest surprise is that he's totally unique. I knew a lot and I'd heard a lot, but I wasn't ready for "total unique." It's in the way he commands a set, the economy of his shooting, how he approaches the work, what he's after, how sure he is of what he's after. I did more one-takes on this picture than anything since my Roger Corman days!

John camera-cuts. If you only do one take, you don't really know what you did. You don't get to refine it. You come home and think of the 35 things you might've thrown in the stew. When a director shoots several takes, you eventually find his rhythm and try to come up to the boil together. But with John Huston everybody's got to be ready to go right away. But there were never any problems. Everyone has such respect for him that no one wants to be the fly in the ointment, so to speak.

Can you compare *Prizzi's Honor* with anything else you've done?

Nothing. The closest would be to pictures where I've been extreme, such as *Goin' South*, *The King of Marvin Gardens* and maybe *The Missouri Breaks*. These movies haven't always gone down too well with the public, but, oddly, I think they're what is most successful about my career as a whole. Many actors will try something different once, but if it isn't a box-office success, they'll never do it again. In my opinion, there's no point in going on with this job if you do the same thing over and over again. I feel very lucky because I don't think there's any part I can't play. There are parts that scare me more than others....

After you've made a movie or two, and you're over the feeling that you're hanging onto something ephemeral by your fingernails, the fun of doing it is in the difference of it. I've always been a smart-aleck filmmaker. From way too early on, I thought I knew everything, so the opaqueness of *Prizzi's Honor* took me by surprise. But I used it. I put my not understanding the material together with the character's dumbness into a kind of dynamic on how to play him. I let the character's limitations keep me happy.

For example, I did not want to know what period the film was set in, and I didn't try for the same kind of dialogue with John that I do with other directors. When you bring him an idea, he doesn't say he doesn't like it. He just goes *[tooth-gnashing grimace]*...and that's all he has to do. You never bring up the idea again. You drift off like smoke.

Phototeque

In *The Shining*, 1980

With Shirley MacLaine in *Terms of Endearment*, 1983

Photoreporters, Inc.

So I said to myself, "OK, I've got one of the most commanding people I've ever known with his hand on the helm; the producer's an old friend of mine; I'll just do my own simple job like a dummy and that's it."

Do you feel the more *auteur*-oriented directors are generally smart enough to incorporate a star into their own vision?

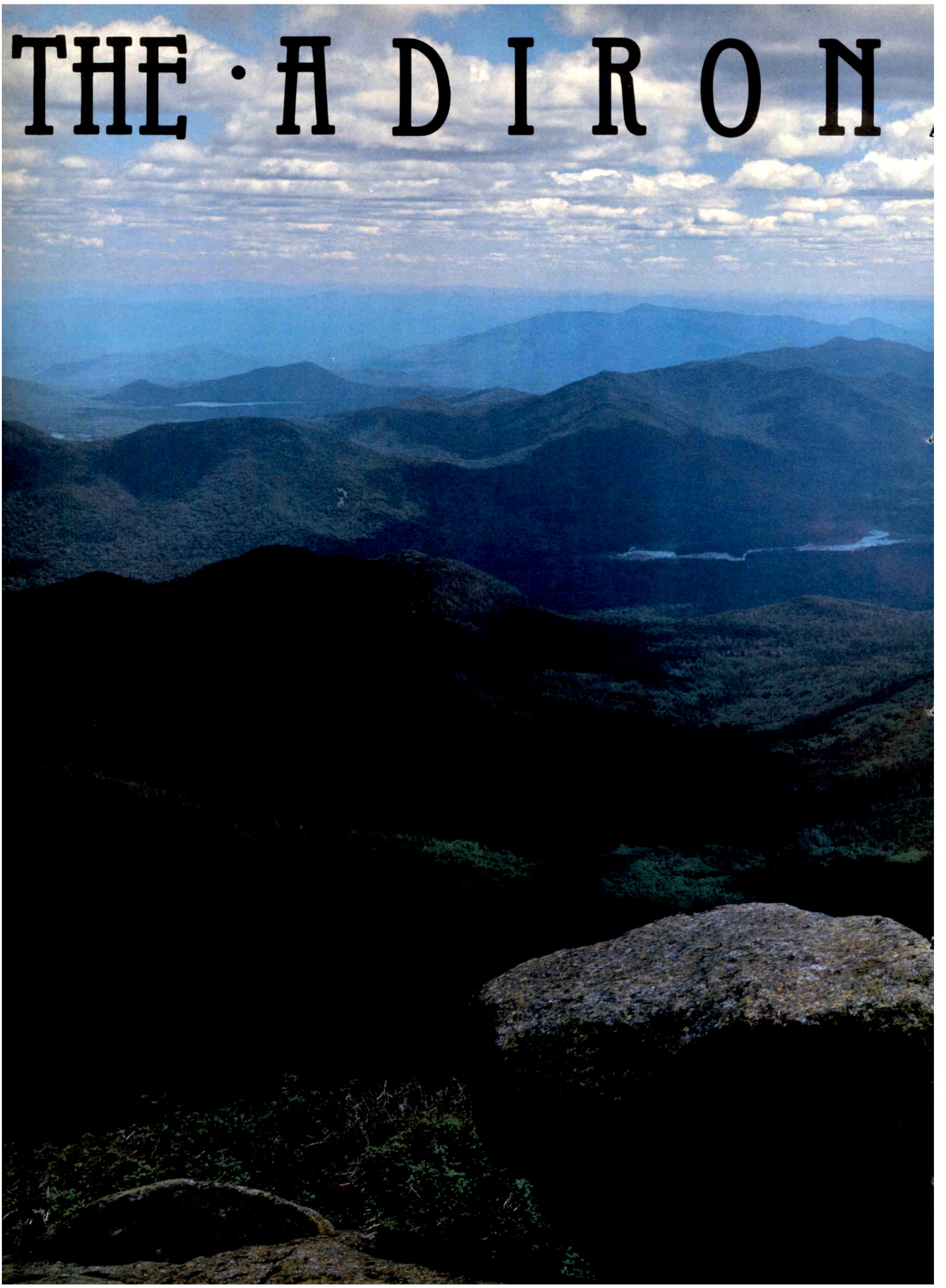
Yes. The people I work with are *auteurs* in the sense that if they want something a certain way, they'll get it. I don't argue with them past a certain point. But I feel it's my job to attempt to influence their thinking. OK, the director makes the movie. But some movies can't get made without someone like me in them.

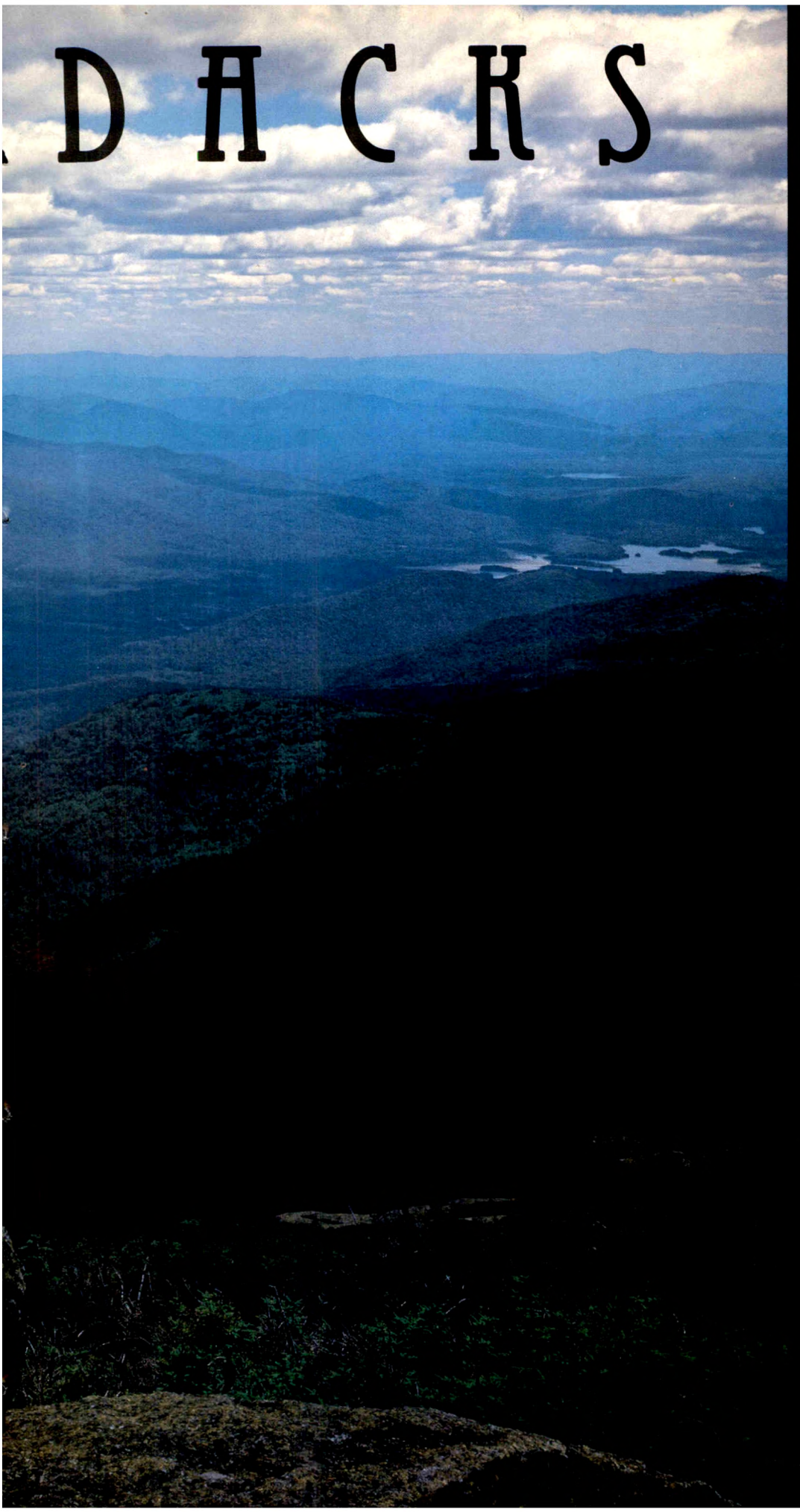
Looking over all of it, the single most obvious thing to me, in all we read and all we write about films, is this: people fear the creative moment. That's why they talk so long about a given scene. But the creative moment is happening when the camera is turned on and stops when it's turned off. First time...this time...only now...never again to be that way again. That's it.

One person cannot be in charge of all that. The director says when to turn on the camera, whether to do another take, and he selects which of the moments he thinks is worthwhile. From a collage point of view, he is primary.

But in that sense, you can't separate out the actor. I always try to get into whatever mold a director has in mind, but in all honesty, in the real *action* of it, they don't know. They want you to deliver "it." They hire someone like myself because they hope I'll do something beyond whatever they have in mind. Bring something they didn't write. They've created everything up to that moment when they turn on the camera—the clothes, the day, the time—but when that rolls, they're totally at the mercy of the actor. ♦

THE·ADIRON





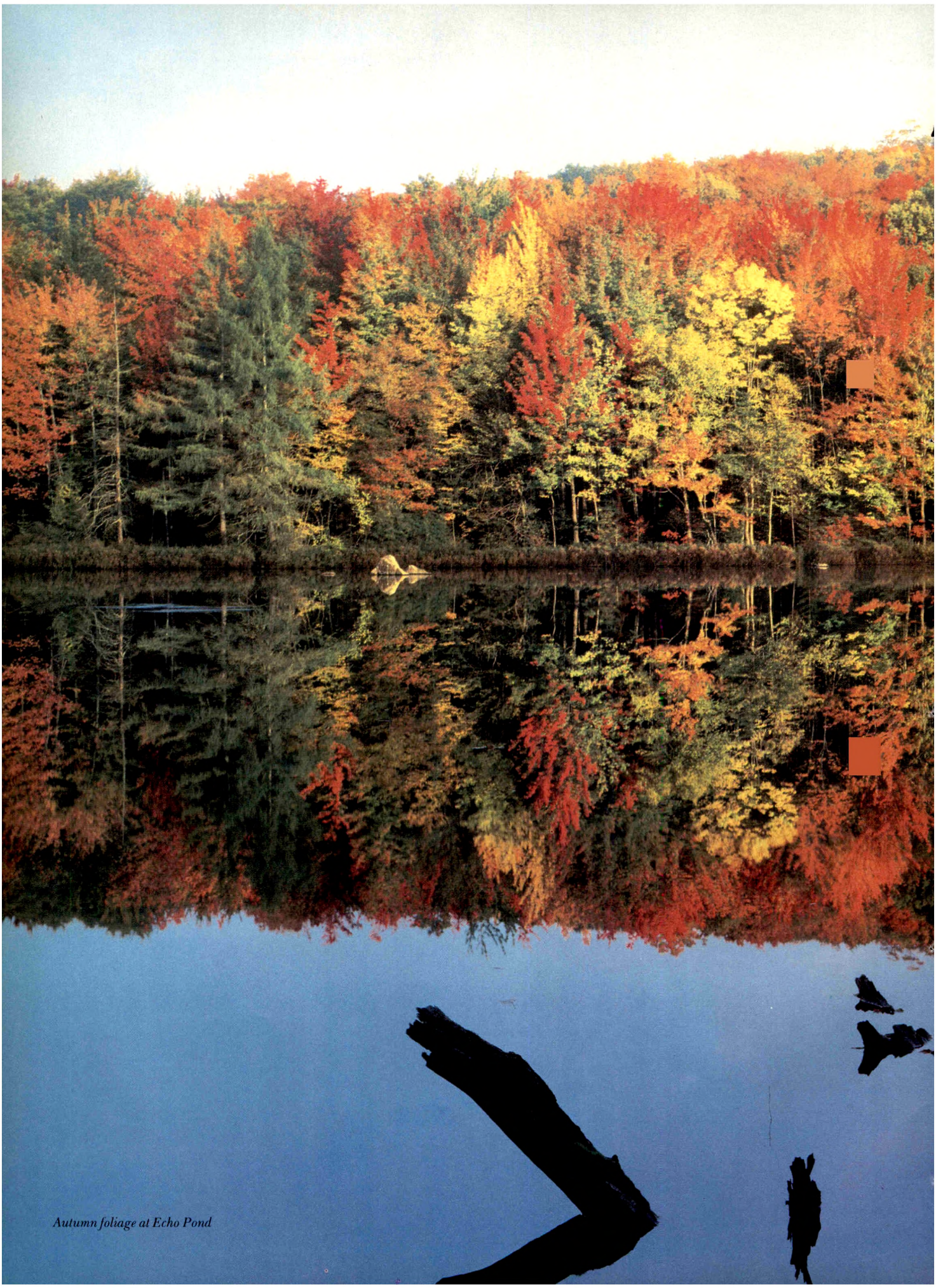
DACKS

PORTFOLIO

Photographs by Nathan Farb

The Adirondack Mountains in northeastern New York dominate one of the world's largest natural parks, covering nearly 2.4 million hectares of extraordinarily varied wilderness. One hundred years ago early conservationists prevailed upon the state legislature to set aside a forest preserve within the Adirondack region that would keep its pristine woods, lakes and ponds, and mountain peaks "forever wild." And to commemorate that centennial, photographer Nathan Farb, who grew up in the Adirondacks and currently lives there, spent two years trekking through the backcountry in quest of pictures that would evoke the sublime emotions these mountains have inspired in many wilder-

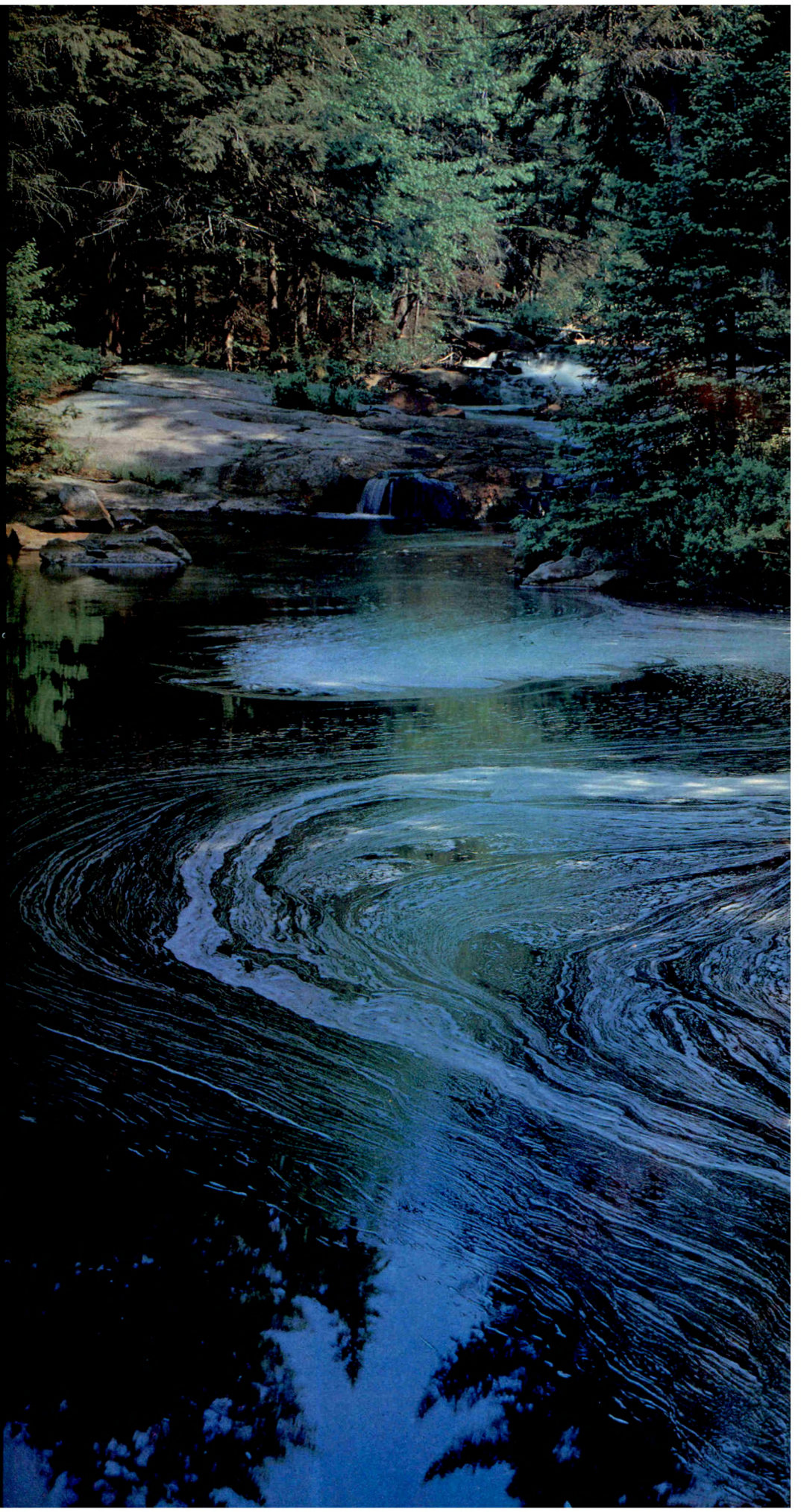
View from Mt. Marcy

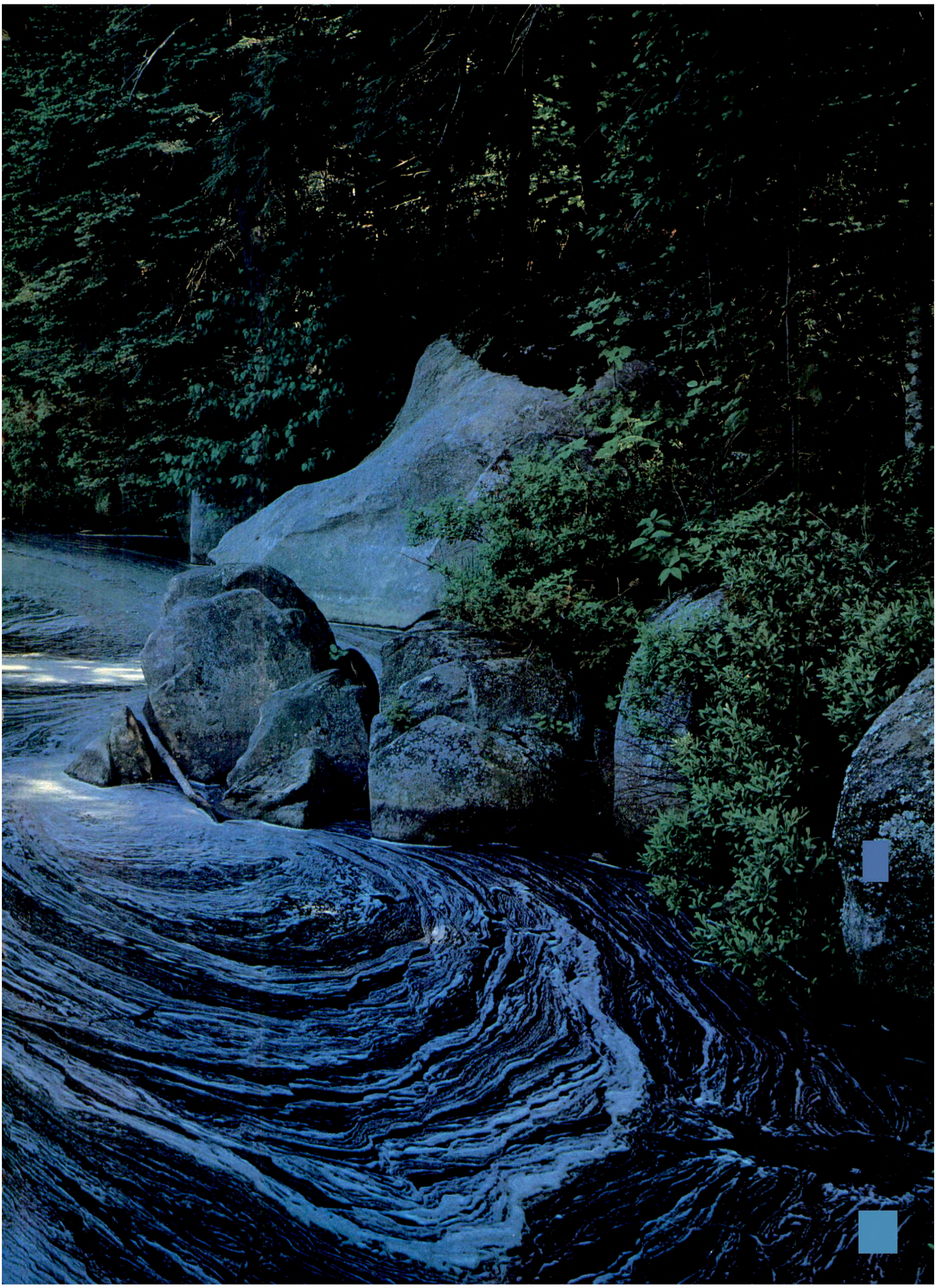


Autumn foliage at Echo Pond

ness lovers. As nature writer Paul Jamieson suggests, "The Adirondack Park...is a national treasure. Its best and highest use is as a cultural resource, an American classic, along with [James Fenimore Cooper's] Leatherstocking Tales, the essays of Emerson and Thoreau, the Lincoln Memorial, Winslow Homer's watercolors, and Frost's poems." Farb, whose work is in many museum collections, including New York's Museum of Modern Art, is perhaps best-known for his photographic book *The Russians* and his pictures for Time-Life Books. The photographs on these pages have been drawn from his most recent book, *The Adirondacks*, published by Rizzoli.

The Goodnow Flowage





Robert Kuttner. Photograph by Richard Howard.

ON THE STATE OF ECONOMICS

By Robert Kuttner
From THE ATLANTIC

Economists like to think of their discipline as the most "scientific" of the social sciences, and the abstract mathematical models and deductive methods currently prevalent in the profession lend support to this attitude. However, the failure of accepted economic theory to deal with the world's problems since the 1970s has thrown the profession into disarray. Journalist Robert Kuttner suggests that economists' reliance on esoteric mathematics as a substitute for studying social institutions in the real world has rendered them ineffectual in important matters of public policy.

Kuttner, a contributing editor to The New Republic, *is the author, most recently, of* The Economic Illusion: False Choices Between Prosperity and Social Justice.

Events have been unkind to the global economy, and unkinder still to U.S. economists. Twenty years ago the age-old problem of boom and bust seemed to have been solved; the ideological schisms that had long plagued economics had been melded into a "neoclassical synthesis" that reconciled the classical economics of Adam Smith's "invisible hand" with the inspired heresies of John Maynard Keynes. In the 1961 edition of his famous textbook Paul Samuelson could write with some confidence that the body of neoclassical theory "is accepted in its broad outlines by all but a few extreme left-wing and right-wing writers."

During the 1970s the world's industrial economies not only faltered but faltered in ways that confounded received theory. As the economy became the paramount political issue in country after country, economists gained notoriety and lost their compass. The business community, a principal consumer of economic forecasting, became increasingly skeptical about the ability of economists to call the turns in the economy. Governments found economists urging politically suicidal austerities.

Within the profession itself the consensus of the 1960s fragmented into Chicago monetarists, post-Keynesians, neo-Marxists, neo-institutionalists, neo-Austrians and a new fundamentalist strain, the rational-expectations school. Since 1970 an outpouring of serious and ideologically diverse articles and books has pronounced that economics is in a state of severe, perhaps terminal, crisis. Some titles convey the sentiments: *The Crisis in Economic Theory*, *Economists at Bay*, *What's Wrong With Economics*, *The Irrelevance of Conventional Economics*, *Why Economics Is Not Yet a Science*, *Dangerous Currents: The State of Economics*.

One hears critical comments not only from Samuelson's "extreme left-wing and right-wing writers" but also in annual addresses by incoming presidents of the American Economic Association (AEA). Yet despite the apparent soul-searching, the teaching of economics, the hiring of young economists and the granting of tenure in universities, the financing of research, and the pages of prestigious journals all evidence deep resistance to change.

Neoclassical economics, the reigning school, marries the assumptions of the classical invisible hand—the principle of a self-regulating economy—to the Keynesian insight that macroeconomic stabilization by government is necessary to keep the clockwork operating smoothly. In method, standard economics is highly abstract, mathematical and deductive, rather than curious about institutions. Neoclassical economic theory posits an economic system of "perfect competition." All transactions in the economy are likened to those that occur in simple marketplaces, like fish markets, in which prices rise or fall exactly enough to move the merchandise. As economists say, adjustment of price based on supply and demand serves to "clear the market." That is, if there is an oversupply of herring on a given day, the shrewd fishmonger will lower his price; otherwise the market will fail to clear and the fish will rot. If there is high demand for lobster but short supply, the fishmonger will raise his price; otherwise there will be too many willing buyers. From this stylized picture of a small market, standard economics projects a "general equilibrium" that is said to characterize the entire economy. Perfect competition, in a sleight of epistemological hand, is said to describe the best possi-

ble as well as the actual world.

The model also assumes that markets are composed of many sellers and many buyers, who individually have too little market power to dictate prices or to manipulate choices, and can only offer or accept bids. As economists say, each seller is a price taker, not a price maker—for otherwise there could not be perfect competition.

Perfect competition requires "perfect information." Consumers must know enough to compare products astutely; workers must be aware of alternative jobs, and capitalists of competing investment opportunities. Otherwise, sellers could charge more than a competitive price and get away with it, and workers could demand more than their services were worth. Moreover, perfect competition requires "perfect mobility of factors." Workers must be free to seek the highest available wage, and capitalists to shift their capital to get the highest available return; otherwise, identical factors of production would command different prices, and the result would be a deviation from the model. Economists argue that monopoly prices or wages can't last very long, because some entrepreneur soon perceives an opportunity, enters the market and forces prices back into equilibrium.

The introduction of concrete social institutions like banks, corporations, currencies and the modern state complicate only the details, not the fundamentals, neoclassical economists say. Likewise, deviations from perfect competition in actual economic life require embellishments of the model, not a revision of its premises. With Keynes, standard theory conceded that disequilibria might intrude upon the economy as a whole, but it held that these could be remedied by judicious stabilization of aggregate demand—that is, combined government and consumer purchasing power.

The neoclassical model assumes that economic behavior is based on the concept of "marginal utility": individual consumers express choices by continually calculating and refining their preferences "at the margin"—the point at which they have extra dollars of income or hours of time to spend—and firms likewise make adjustments at the margin to maximize their profits. We know these things by assumption and inference; an individual who did not maximize his well-being would be behaving irrationally, and a firm failing to maximize profits would fall by the wayside. In most models the state of technology is assumed to be constant, and so are cultural and institutional environments. Technological, cultural and institutional changes that do occur over time result from individuals' constantly adjusting their preferences at the margin. If individuals have cultural attachments, and motivations other than utility maximization, these are not of theoretical significance. Charles Schultze, a senior fellow at the Brookings Institution and a recent president of the AEA, says, "When you dig deep down, economists are scared to death of being sociologists. The one great thing we have going for us is the premise that individuals act rationally in trying to satisfy their preferences. That is an incredibly powerful tool, because you can model it."

When the standard model is presented in the classroom, an impertinent freshman invariably protests that it is plainly unrealistic. The professor has heard the complaint before. He tells the student that we must walk before we can run, that we must oversimplify for the sake of analytical clarity, and that after the student is more accomplished in analytic technique, refinements will be added to adjust the model to the nuances of economic reality. The model indeed becomes more elaborate, yet the basic assumptions persist. By then the student either will have decided that the entire exercise is unrewarding and moved on to history or sociology, or will have mastered the difficult mathematical proofs and acquired a certain fondness for deductive logic, as well as a professional loyalty to the discipline.

Neoclassical economic analysis grows out of the Enlightenment mentality, which substituted a scientific natural order for a metaphysical one. An invisible hand that shaped individual egoism into general harmony reconciled the Enlightenment predilections for personal liberty and natural laws. Adam Smith's concept of equilibrium in market economics is also a variation on 18th-century Newtonian mechanics. Physics has served ever since as a model to which economics should aspire.

The difficulty is that economic phenomena are neither so universal nor so predictable as physical phenomena. If, for example, most actual markets do not automatically clear according to price, then standard economics is building elaborate models of a world that doesn't exist. As Lester Thurow observed in *Dangerous Currents* [see *Review* 28/3], some markets, such as the stock market, do roughly bear out the classical assumption that markets clear on the basis of adjustment in price, while others, such

as the market for labor, do nothing of the sort, and still others, such as the market for automobiles, are somewhere in between.

It is not unusual for laymen to fault academic experts for playing in a sandbox of abstraction, but such criticism is especially justifiable when it applies to economists, for they, unlike literary scholars, operate in two worlds. They are, as the radical economist Samuel Bowles once observed, both priests and engineers. Their sandbox is the economy. When economists are relied upon for practical advice, the consequences of faulty theory are real.

Of several major theoretical problems the most basic is that economic theory reasons deductively, from axioms. The world of perfect competition posited by neoclassical economics may be so far from the world in which we live that it is not a useful basis for theory or policy advice. Certainly, if the world were literally like the theory, daily life would be anarchic. Thorstein Veblen wrote: "If, in fact, all the conventional relations and principles of pecuniary intercourse were subject to such a perpetual rationalized, calculating revision, so that each article of usage, appreciation, or procedure must approve itself *de novo* on hedonistic grounds of sensuous expediency...it is not conceivable that the institutional fabric would last overnight."

By reasoning deductively from axioms, economics confuses the normative with the descriptive. Theory stipulates, *a priori*, that perfect competition is both a description of the optimal world and a useful approximation of the actual world. When it is pointed out that high unemployment, or segmented labor markets, or oligopolistic corporations, or national economic-development strategies, or big public sectors, or regulated banks, or protected agricultural markets—or the logic of social organizations in general—suggest a world very far from the textbook picture of perfect competition and self-correcting markets, the economist has essentially two choices. He can turn pamphleteer, as so many economists do, and insist that the world would be a better place if it did conform to the textbooks. Or he can scrap the formalism, get out of the office and study the profane world of real institutions. There are some economists of this sort, but they are mostly of an older generation—men like Herbert Simon of Carnegie-Mellon University and Albert Hirschman of the Institute for Advanced Study, who challenge the psychological assumptions of the orthodox model. However, you will find very few under age 50 in tenured chairs at major universities, or in the prestigious economics journals; and you will not find work of this kind in the body of theory taught to aspiring young economists.

The deductive method of practicing economic science creates a professional ethic of studied myopia. Apprentice economists are relieved of the need to learn much about the complexities of human motivation, the messy universe of economic institutions or the real dynamics of technological change. In economics, deduction drives out empiricism. Those who have real empirical curiosity and insight about the workings of banks, corporations, production technologies, trade unions, economic history or individual behavior are dismissed as casual empiricists, literary historians or sociologists, and marginalized within the profession. In their place departments of economics are graduating a generation of *idiots savants*, brilliant at esoteric mathematics yet innocent of actual economic life.

Economists use statistics and mathematical models in several distinct ways, each with its own pitfalls. Some mathematical models are pure theory; they use algebra only to manipulate assumptions. This is true of general equilibrium theory, and also true of many lesser topics explored in journal articles. For example, a characteristic article titled "A Model of Housing Tenure Choice," by J.V. Henderson and Y.M. Ioannides, which appeared in a recent issue of *The American Economic Review*, inquired how wealth, income, "life cycle" and other variables influence the decision whether to buy or rent a house. For the sake of analysis the model assumed, among other things, that housing markets are "in equilibrium." The model went on to deduce algebraically what consumers do (in theory), given different market circumstances. The authors then reported certain conclusions, such as "Renting becomes more attractive if housing is subject to random capital gains or losses and consumers may also invest in a capital market at a fixed rate of return." In other words, consumers will prefer a sure thing to a gamble. What's striking about the article, and others of its genre, is that it contains no data and no indications that the authors have ever studied an actual housing market. The article is pure manipulation of assumptions and inference, using mathematical logic.

A quite different use of mathematics is econometric modeling, which can be heavily empirical. Commercial consulting firms such as Wharton Econometrics,

Chase Econometrics, and Data Resources, Inc., have devised complex models of the economy, which may use upwards of a thousand equations, linked by means of a computer program. By collecting data over a long period of time and tabulating correlations, an econometric modeler attempts to predict how variables will influence one another in the future. The difficulties with such models are that there are always more variables than the model considers and that the past doesn't necessarily foreshadow the future. In recent years the major influences on macroeconomic climate have been external variables (the OPEC price increase, for example) and structural changes in the system (the globalization of technology and finance). After a period of rapidly increasing popularity in the 1970s the big economic forecasting models have fallen somewhat from favor.

A different and even more controversial use of econometric techniques is in the testing of algebraically modeled hypotheses. A mathematical technique known as multiple linear regression allows the testing of several variables that might have a cause-and-effect relationship, by considering them one at a time. If wages are thought to be influenced by occupation, education, IQ, sex and race, econometric techniques can determine how strongly each factor correlates with variations in wages; the researcher can then attempt to impute causality.

This brand of econometric testing, however, brings manifold problems. In economic life cause-and-effect does not happen instantly; there are delays before influences are felt. The last refuge of an economic scoundrel is the time lag. By manipulating time lags the determined econometrician can "prove" almost anything. Moreover, though many economists argue that the fair way to test a theory is to specify the hypothesis, and run the regression equations once, it is common practice to keep fiddling with the equations, manipulating lag times, lead times and other variables, until the equations more or less confirm the hypothesis. Some correlations, of course, may be just coincidence; other apparent correlations may disguise real causes that have been overlooked.

The computer has made it simple for researchers to run an almost infinite number of equations, using standard software packages. Rather than serving as a tool of empirical scrutiny, this technique can turn the economist into a pure technician—or a pure ideologue. Recent innovations in effect have the computer go on automatic pilot and search for correlations, almost at random. "The risk of cheap computing," says Roger Brinner, the chief domestic economist at Data Resources, Inc., "is the assumption that the machine can provide the intelligence. Researchers make the error of failing to test competing theories against each other; instead you spend all of your time plugging away at the terminal, trying to get your data to fit your theory."

Among the most astringent critics of the overmathematization of economics is one of the profession's most notable mathematicians, Wassily Leontief. In his 1970 AEA presidential address, Leontief, the first economist to work with computers and the inventor of mathematical input-output analysis, which won him the 1973 Nobel Prize, decried the increasing "preoccupation with imaginary, hypothetical, rather than with observable, reality," and described a "Darwinian" process by which pure theorists drive out those who study the actual economy.

Another critic of the mathematical approach was the late Oskar Morgenstern, the coinventor of games theory and an economist and mathematician loosely identified with the conservative Austrian school. Morgenstern, in a splendid nontechnical book titled *On the Accuracy of Economic Observations*, pointed out the unreliability of most economic statistics. For one thing, people responding to official questionnaires often lie, out of fear of government scrutiny or a desire to mislead the competition. For another, economics is notorious for using second-hand data, collected for other purposes, whose logic may be legal or bureaucratic rather than economic. Morgenstern went on to explain how the mathematical manipulations of data that are imperfect to begin with compound statistical errors, leading to wildly inaccurate results. And the more complex the equation, the greater the possibility of cascading errors.

The most frequently cited defense of mathematical, deductive reasoning was offered more than 30 years ago in Milton Friedman's *Essays in Positive Economics*. It does not matter, Friedman argued, whether an assumption is empirically true so long as it is internally consistent and the model is not refuted by data. Thus, even in a world where competition is far from perfect it is valid to model economic activity "as if" it conformed to the axioms of classical economics. Friedman used an analogy of a

hypothetical expert billiards player.

> It seems not at all unreasonable...that the billiard player made his shots *as if* he knew the complicated mathematical formulas that would give the optimum directions of travel....Our confidence in this hypothesis is not based on the belief that billiard players, even expert ones, can or do go through the process described; it derives rather from the belief that, unless in some way or other they were capable of reaching essentially the same result, they would not in fact be *expert* billiard players.
>
> It is only a short step from these examples to the economic hypothesis that under a wide range of circumstances individual firms behave *as if* they were seeking rationally to maximize their expected returns...and had full knowledge of the data needed to succeed in this attempt.

It matters that economists are trained to view the world the way they do. Lately, almost all public policy questions have been defined as economic ones. The experts with the professional authority to pronounce on such questions are, of course, economists. Civic issues of public values, political power, the nature of democratic society, are mistaken for narrowly technical issues, with conclusions ordained and alternative solutions foreclosed.

An equally serious consequence of the professional obsession with model making is that the most pressing *economic* questions lie outside the frame of reference. The issues that standard economics can't explain and doesn't address are of far greater moment than the ones "solved" by the formal proofs. A noneconomist reading the economics journals is struck mainly by what is left out.

One could imagine a wholly different sort of economics, which empirically investigated when the assumptions of the standard model apply and when they don't. How do technological and institutional changes influence economic growth? What institutional circumstances merit public intervention? What are the links between economic performance and cultural and political values? When is the famous trade-off between equality and efficiency a genuine imperative, and when is it only a rationalization for privilege? Which markets behave like the textbook market? Under what cultural, technological and institutional circumstances does interference with the market allocation of capital investment produce dynamic gains? What really accounts for the wide disparities in the degree of technological success achieved by different nations in different historical eras? What practical costs and what benefits to dynamic efficiency do different forms of redistribution incur? What really motivates human behavior, and under what circumstances are impulses cooperative and altruistic as well as self-interested? These subjects are seldom treated in the economics journals, except at impenetrable levels of abstraction and assumption.

To the extent that observation challenges theory, real empiricism becomes a thorn in the side of the deductive method. Richard Freeman and James Medoff, economists at Harvard, have assembled data indicating that the actual influence of trade unions on productivity depends on institutional particulars [see *Dialogue* 68]. Some unions, by providing workers a voice and a fair grievance procedure, apparently improve output. Others depress it. Getting down to cases suggests that orthodox theory has ignored the crucial variables of worker motivation and labor-management interaction. The most common dismissal of work like Freeman and Medoff's is "That's very interesting—but it isn't economics."

The standard economic literature also produces little useful insight into the sources of technological innovation and dynamic gain, because that is not how the problems are posed. According to the prevailing definition, economics is the study of the allocation of scarce resources: how free markets steer resources to their optimal use. But, to take a historical example, economic resources in the United States on the eve of World War II were lying fallow, because unemployment was high, purchasing power was depressed, and firms—already experiencing a lack of customers and substantial excess capacity—were (rationally) failing to invest capital. Along came the war, causing the government to raise taxes, to increase public borrowing and abruptly to invest about a third of the gross national product in war production. The result was a drop in unemployment from 15 percent to two percent, a growth rate that averaged 11 percent a year throughout the war, the development of new advanced technologies (many with postwar civilian applications) and the training of a generation of skilled industrial workers. Seemingly, World War II would be a laboratory case of the effects of deflecting a mar-

ket economy from its true path with substantial planning and government control of investment, to say nothing of wage and price controls. Yet professional economists have not paid much attention to the war years. On the contrary, in practice econometric modeling often discounts the war experience because it tends to curdle the equations.

Orthodox economics has little appreciation for dynamic growth of the entrepreneurial, Schumpeterian variety, either. One finds extensive abstract debate in the scholarly literature about production functions, capital reswitching, labor productivity and capital-output ratios but precious little concrete information about, for example, the rapid development of aircraft technology after World War II.

As Thomas Kuhn observed in his work *The Structure of Scientific Revolutions*, scholarly conflict is always most intense along the boundaries of an established scientific paradigm challenged by anomalous observations. The "overthrow" of a scientific paradigm, Kuhn said, is much like a political revolution, which aims "to change political institutions in ways that those institutions themselves prohibit." The mistrust of empiricism in economics is a sure sign of an insecure regime.

Lately, a mood of self-doubt has even crept into the economics journals. In a wonderfully rich recent article in the *Journal of Economic Literature*, titled "The Rhetoric of Economics," Donald McCloskey of the University of Iowa wrote that economics is adrift in metaphors that have no application to empirical reality but that are taken literally, because they happen to be in the language of mathematics.

> To say that markets can be represented by supply and demand "curves" is no less a metaphor than to say that the west wind is "the breath of autumn's being."...Each step in economic reasoning, even the reasoning of the official rhetoric, is metaphor. The world is said to be "like" a complex model, and its measurements are said to be like the easily measured proxy variable to hand.

Quoting the literary critic I.A. Richards, McCloskey defined a metaphor as "a transaction between contexts." Modern economics is in many respects metaphor run wild: it not only stylizes and misstates what occurs in narrowly economic realms but also extends its theory of the rational, utility-maximizing *homo economicus* to areas of life in which values other than material maximization plainly apply, and about which it has no data. An example is economic theories of the family which consider children to be material goods.

The study of who gets what and why, unlike the study of plants or planets, cannot help being an ideologically charged undertaking. Despite the laborious techniques and scientific pretensions, most brands of economics are covertly ideological. Marxian economics, with its labor theory of value, assumes the inevitability of class conflict, and hence the necessity of class struggle. Keynesianism, with its conviction that industrial capitalism is systemically unstable, offers an equally "scientific" rationale for government intervention. Neoclassical economics, with its reliance on the efficiency of markets, is an embroidered brief for laissez-faire.

However, a generation ago economics was far more committed to observation, disputation and its own intellectual history. The lions of the mid-century had lived through depression and war, had watched real economic institutions totter, had worked in economic agencies and had appreciated the power of wartime statecraft. Most of them are now gone. In the 1920s and 1930s an eclectic school of economics known as institutionalism flourished. Inspired by Veblen, institutionalists were committed to the empirical study of corporations, banks, labor unions and so on as concrete social organizations. Ironically, they were displaced partly by econometricians, who promised a more rigorous empiricism. Institutionalists still exist, but few are to be found at the 15 or 20 elite graduate schools that turn out tenured faculty for one another.

The other two main schools that today compete with neoclassicism—neo-Marxism and post-Keynesianism—are intellectually lively but effectively isolated from mainstream economics. The neo-Marxists have their own professional association, the Union for Radical Political Economics, and have strongholds in a few graduate departments, but they hold, by my count, only four or five tenured positions at the elite universities, have only token access to the major journals and receive little research funding.

Neo-Marxists study what mainstream economics overlooks: the organization of production, the influence of technology on work, the impact of the globalization of finance. A "social conflict" model of productivity slowdown by neo-Marxist Samuel Bowles and colleagues was sufficiently plausible when ren-

dered econometrically that it was accepted for publication in the *Brookings Papers on Economic Activity*. However, Marxism is at once a mode of scholarly inquiry and a revolutionary ideology. In America any form of Marxism is hopelessly distant from the political mainstream, and neo-Marxism is precluded from serving as a convincing alternative to the dominant neoclassical school.

The third dissenting school, the post-Keynesian, is the weakest and apparently the most despised of all. The post-Keynesians want to rescue Keynes from neoclassical synthesis—which Keynes's disciple Joan Robinson has called "bastard Keynesianism." They, along with the institutionalists, insist that large corporations and labor unions are major facts of economic life and that economic intercourse cannot be modeled as mechanical transactions in equilibrium. But neoclassical economists are mostly contemptuous of the post-Keynesians. A few Marxists, apparently, can be tolerated. But those claiming to be the true heirs of Keynes are regarded as economic Anabaptists, a curious theological mistake that won't go away.

In the interstices between the schools are a handful of brilliant eclectics—an older generation, including Leontief, John Kenneth Galbraith, Albert Hirschman and Herbert Simon, and a few people in their 30's and 40's like Lester Thurow, James Medoff, Richard Freeman, George Akerlof of the University of California, Berkeley, and Michael Piore of MIT. Piore's recent book, *The Second Industrial Divide*, which he wrote with the political economist Charles Sabel [see *Dialogue* 69], painstakingly re-examines technological innovation throughout history and concludes that the present macroeconomic woes are due in part to unsettling changes in the organization of corporations, financial systems, technologies and consumer markets. This sort of insight depends on the concrete study of institutions.

The difficulty is that eclecticism, no matter how brilliant, doesn't add up to a contending school. The great idiosyncratic economists of the last generation, like Galbraith and Simon, disseminated their work to a broad audience but left few spores within the profession. In recent years the fields of inquiry that deal with applied economics have been driven from the standard curriculum. Thirty years ago an economics student took courses in money and banking, labor economics, economic history and perhaps industrial organization, economic development and international trade. All of these courses grounded the grand theory in a sense of how actual economic institutions operate. Today these are considered remnants of an older, not quite scientific tradition.

The economic historian Robert Heilbroner titled his book on the history of economic thought *The Worldly Philosophers*. As a description of the moral philosophers of the Enlightenment who abandoned metaphysics for the investigation of commercial life, the phrase fit perfectly. As a description of today's economists, however, Heilbroner's title would be a misnomer. Economists have become the least worldly of social scientists. At a time when the other social sciences—sociology, psychology, political science, history—are letting many schools contend, only economics has such fear of dissension. "There is a profound weakness at the core of neoclassical economics," Heilbroner says. "It can't answer the most basic questions. What is a price? What is money? What killed full employment? What is the boundary between economics and politics, or society? It has become like medieval theology. Before economics can progress, it must abandon its suicidal formalism."

Yet mainstream economics is doing nothing of the kind. Virtually all of the heretics I have talked to agree that if they were young assistant professors attempting to practice their brand of economics today, they would not get tenure. The most frequently repeated insight of Thomas Kuhn's is that a paradigm cannot be displaced by evidence, only by another paradigm. And no dissenting paradigm seems able to gain a foothold within economics. Thus the economic orthodoxy is reinforced by ideology, by the sociology of the profession, by the politics of who gets published or promoted and whose research gets funded. In the economics profession the free marketplace of ideas is one more market that doesn't work like the model. ♦

REVIEWS

OPERA

Casanova's Latest Conquest

By Peter G. Davis
From NEW YORK

Many people must have watched Dominick Argento's *Casanova* at the New York City Opera with growing astonishment. Imagine: a new American opera, composed in a conservative, accessible idiom, one that draws its strength from traditional operatic conventions, and not a moment is stale, tired or secondhand. On the contrary—Argento's latest stage piece is crammed with marvelous music, a delightful and masterly crafted entertainment conceived by one of the finest creative musical sensibilities in America today. I have seen only two performances so far, but I am already tempted to include *Casanova* in very select company—*Porgy and Bess*, *Four Saints in Three Acts* and *The Mother of Us All* (Virgil Thomson's two collaborations with Gertrude Stein), Leonard Bernstein's *Candide* and perhaps a few other works that show American opera at its best.

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Like so many opera composers before him, Argento has been drawn to some fairly grim theatrical subjects; after bringing Edgar Allan Poe, Dickens's mad Miss Havisham and Shakespeare's drunken Christopher Sly to the stage, he probably needed a change of pace. And yet even these tragic figures of his earlier works are ennobled by the quickening, life-celebratory spirit that is the most treasurable characteristic of Argento's music, an irrepressible ebullience that bubbles to the surface in every scene of *Casanova*. Laughter frames the opera. A gale of merriment erupts behind the curtain even before Act I begins, and the hilarity can still be heard after the last note has sounded and the final curtain has fallen. It is the shared laughter of an occasionally errant but always loving community, the same heart-catching joviality that courses through Verdi's *Falstaff*—warm, human, infectious and wonderful to hear.

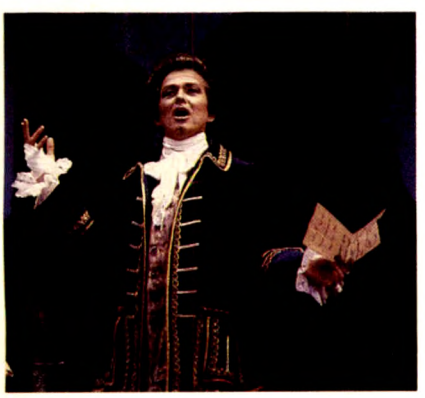
Argento wrote the libretto himself, and no composer could hope for a more literate text, let alone one more theatrically effective or hospitable to music. In 1774, approaching middle age, Casanova has returned home to Venice, and the opera focuses on two of his last adventures, cleverly combined into a single plot. Most of Act I is concerned with the elaborate seduction of Bellino, a singer thought to be a castrato but, as only a Casanova could sense, actually a beautiful woman, disguised as a man to promote her operatic career. The other intrigue roils around the deranged Madame d'Urfé, who fancies Casanova as a famous necromancer and engages him to perform "The Great Work": the transference of her spirit into the body of a male infant. The rogue gleefully conducts this wild occult ritual during a violent hurricane on the Grand Canal, and in the process he relieves Madame d'Urfé of her jewels, which then become a dowry for Casanova's needy godchild.

A detailed analysis of the opera would show how skillfully and imaginatively Argento has organized this material into a swiftly paced, witty musical drama populated by dozens of delightful personalities. Fortunately, an audience need not trouble itself with analytical matters, since the complex plot is lucidly presented and the score percolates with instant musical appeal. I may be mistaken, but I detect a new clarity and economy in Argento's style. Although nearly all the themes in *Casanova* are built from simple triads, Argento never seems to run out of fresh, creative ways to ring changes on familiar tonal patterns and use them to illuminate the action and the characters. During the opera's opening measures, for example, the first voice we hear amid the milling carnival crowd is an anonymous mountebank singing, "Who will try?"—a tiny but exuberant G major motif that recurs throughout the score until we eventually recognize it as the motto of the entire opera: an inviting melodic embrace and the musical embodiment of Casanova's life-enhancing philosophy.

The lyrical atmosphere of 18th-century Venice is omnipresent, dur-

ing the delicious opera-seria pastiche of Act I, the whirling carnival scenes, and the quiet "morning after" respite as the haunting song of an offstage gondolier wafts over Casanova and his grateful companion of the previous night. I might also point out Argento's virtuoso treatment of expositional dialogue, which always flows naturally and tunefully yet expeditiously: not since Virgil Thomson has an opera composer set the English language with such grace and elegance.

I realize that the City Opera must be many different things to many different people nowadays, but while watching *Casanova* I was reminded of the young company that I first got to know and love years ago at the City Center theater, when the commitment to American opera was very real and immensely vital. Of course, this production of *Casanova* originated with the Minnesota Opera, which staged the world premiere in April 1985; but it still seems very much a City Opera occasion—a new work treated with loving care by talented singers who never seem quite so effective or convincing as when performing an opera in their own language.



Timothy Nolen in *Casanova*

Timothy Nolen in the title role commands center stage as he should, dangerously virile but always graceful, charming and vocally alluring. As the obsessed Madame d'Urfé, Joyce Castle somehow manages to be hilariously loony and strangely touching at the same time—a remarkable performance. Most of all, I thank Dominick Argento for composing *Casanova*, an opera that should be in the repertory of every company in the land. ♦

EDUCATION

Women in Academe

Barbara Miller Solomon, *In the Company of Educated Women: A History of Women and Higher Education in America*. Yale University Press. 298 pp.

By Jurgen Herbst
From REVIEWS IN AMERICAN HISTORY

In the Company of Educated Women is the first modern comprehensive account of college-educated women in the United States. No other publication of comparable scope and sweep dealing with the various aspects of the lives of educated women has appeared in the United States since Thomas Woody's two-volume *A History of Women's Education in the United States* (1929). Woody, however, wrote narrative history centering on the development of women's educational institutions. Solomon goes beyond this approach to discuss the implications of higher education for women and for society. She divides her book into four different periods: the colonial years, the antebellum era, the decades stretching from the Civil War into the 20th century and the times after 1920. Throughout it all Solomon aims to explore "the paradoxes of this unfinished revolution." Her book, then, is more than a simple updating of Woody's.

Solomon and Woody also differ in their views of history. Woody saw the development of women's education gathering momentum and force. He was confident that it would continue to do so. Solomon, who has had a long career as a teacher and administrator at Radcliffe College and Harvard University, acknowledges this forward movement but stresses its unfinished nature. She is persuaded that, at the time of her writing, women have not achieved equality and still contend "with the fear and ambivalence implicit in public attitudes and policies towards women's changing roles." Hers is not a story of triumphally conquering feminism but one of determined, though often hesitant and uncertain, advance.

Throughout her narrative Solomon discusses four themes: the struggle for access to educational institutions, the dimensions of the collegiate experience, the effects of education upon life choices, and last, but not least, the "uneasy connection between feminism and women's educational advancement." Solomon's volume places itself in the tradition of committed scholarship: careful, extensive research and clearly announced direction and intent. It is not surprising why early reviewers should call it an enduring classic and standard work.

The book's opening sentence starts Solomon off on her discussion of the struggle for access. By the end of the 18th century, academies and seminaries began to open their doors to girls. Eventually some of them developed into colleges and, by the late 1850s, most of them gave way to public secondary schools. Then, in the years between 1850 and 1870, the spread of public secondary education, the impact of the Civil War, the demands of Reconstruction and the ferment in university education led to the establishment of a wide variety of collegiate institutions for women: the private women's colleges, the religiously oriented coeducational colleges, both public and private secular coeducational schools, and the public

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Barbara Miller Solomon at Harvard University

single-sex vocational institutions.

In the 30 years after 1870 the number of females enrolled in institutions of higher learning multiplied almost eightfold, rising more rapidly than the number of male students. By 1920 it had reached 47 percent of all enrollments. Returning World War II veterans caused the proportion to drop to 30 percent by 1950, but then the climb resumed until it reached 52 percent in 1980.

What did women experience inside the halls of academe? Seeking academic respectability, the academies and seminaries for the most part adopted as much of the liberal arts curriculum of the male colleges as they could. To this they added some form of vocational preparation suited for women, usually teacher training. In both seminaries and colleges, however, teachers and administrators set limits to the pursuit of "masculine" subjects such as rhetoric, a study thought to be a professional tool for the minister, the lawyer, the politician and even the salesman.

Just as seminaries began to give way or change into colleges, the men's colleges started to experiment with electives and other curricular reforms. For women this opportunity for choice brought renewed emphasis on the woman's sphere—the liberal arts, teaching and home economics. Particularly the latter, writes Solomon, "posed a genuine threat to female academics. Individuals were too often shunted into that department of their institutions rather than being allowed to assume faculty standing in the disciplines in which they were trained."

The notion of the woman's sphere haunted academic women from the 1860s to the 1920s. Whether they lived in women's colleges or coeducational institutions, the world of peer-group culture and coteries, of girlhood friendships, of women's athletics, settlement houses, literary societies, theatricals and sororities was a women's world. In that world, writes Solomon, women "felt connected both as collegians and by a common belief in the worth of women."

Solomon states that higher education's chief effect on women has been the opportunity to create for themselves multiple identities. Women educated in the academies of the 19th century achieved economic independence in household, textile mill, common school and the academy itself. Their years in school prolonged their youth and fostered a sense of individualism. Once married, many of them turned to charity work, teaching, lecturing or popular writing. Others chose religious work as minister's wives or as missionaries. While the home as the woman's sphere and homemaking as her activity remained the common notion, new ideas of shared marriage responsibilities began to appear as the number of educated wives increased.

In the 20th century the query, "After marriage, what?" as well as parental and societal demands or expectations began to focus on the problem of work and raised questions of identity. For many married women the line between voluntarism and professionalism began to blur. While prospects for professional employment grew in the so-called semiprofessions, it remained difficult for women to rise in medicine, business, the ministry, law and academia. After 1920 sentiments changed on the issue of whether a woman could be both wife and professional. Solomon concludes that the affirmation of multiple identities for women had been endorsed "by a majority of graduates, whether married or unmarried," and that this affirmation, difficult and painful as it often was, "represented a giant step in the thinking of educated women."

Still, Solomon hesitates to see permanent gains for women. "Most faculty [members] revealed conscious and unconscious ambivalence toward women's professional aspirations," and women remained "the second sex in most of academia," she writes of the period since the 1960s. In university courses the subject of women was "treated as a fringe matter," and young women retreated from career aspirations. Most disturbing of all, Solomon observes, the women's movement "has appealed primarily to middle- and upper-class educated women."

One lays down her pages deeply aware that the account rendered is yet unsettled, the story unfinished. Perhaps it is just this hesitancy to affirm unequivocally, this awareness of the open-endedness of human affairs, that makes this book truly remarkable. ♦

SCIENCE

Theories of Extinction

John Noble Wilford, *The Riddle of the Dinosaur*. Alfred A. Knopf. 304 pp.

By Alfred Meyer
From SCIENCE 86

In his new book, John Wilford, science correspondent for *The New York Times*, appears to confirm the notion that, apart from professional paleontologists, the only ones who take dinosaurs very seriously are children. "Should a grown man spend several years contemplating dinosaurs?" Wilford asks, explaining the reservations that beset him in undertaking this book. Fortunately, he answered yes, for he has produced a book that is masterful and exceedingly adult, as well as abundantly affectionate.

Wilford chronicles the intersection of geology and paleontology, starting in the late 18th century, by which fossil plants and animals rather than Scripture became the primary indicators of age in geological strata. This was also the period in which the great French paleontologist Georges Cuvier first made the world aware that on the species level, the counterpart of death was extinction, a new and chilling idea. These developments and others Wilford describes led to a reorganization of the time scale of Earth's history, thus giving Darwin's theory of natural selection sufficient temporal scope. Another result was a worldwide "bone rush" that lasted for many decades. Still vivid in the European and American mind, the spirit of geographic exploration turned earthward, that is, to the search for ever-larger, more informative and more completely articulated fossil skeletons. The shales of England were scoured as thoroughly as the coal fields of Germany. In the United States, the search for bones in the West led Othniel Charles Marsh of Yale and Edward Drinker Cope, an independent paleontologist in Philadelphia, to enter into an acrimonious and legendary competition. Later, in the 1920s, Roy Chapman Andrews of the American Museum of Natural History in New York launched the largest paleontological expedition ever, taking some 40 men into the vast Gobi Desert.

Meanwhile, back in the laboratories, scholars sorted out the petrified treasures, an effort that dramatically filled out the fossil record. It also produced a surge in the exhibition repertoire of natural-history museums, leading to the enthrallment of generations of schoolchildren. Then the emphasis changed from collecting and comparative anatomy to the contemplation of deeper questions. Going beyond taxonomy, scientists began to search for clues to dinosaur behavior and physiology. Questions about climate, locomotion, metabolism and nutrition begged yet larger ones: what made dinosaurs so successful for more than 140 million years? Why did they disappear so suddenly? Scientists began making an attempt, as yet unfinished, to flesh out the life that had been. Paleontology was not only being revised, it was being revived.

After superb discussions of such contemporary paleontological issues as the origin of flight, whether dinosaurs were cold- or warm-blooded, and the extent to which their infant care approached that of mammals, Wilford brings his book to a close on the most burning topics of the day. Was it an asteroid that stunned the Earth at the end of the Cretaceous period and brought about the extinction of the dinosaurs? Do such massive extinctions occur cyclically? Could they be caused by an extraterrestrial source?

This last and most arresting part of his book begins with a description of some of the more intriguing hypotheses offered in recent years to account for the vast extinction that took place some 65 million years ago. His list includes destruction of the Earth's ozone layer, carbon dioxide and the "greenhouse effect," Arctic Ocean spillage, stress and thin eggshells, magnetic reversals with subsequent cosmic particle bombardment, and, somewhat whimsically, constipation and poisoning. This nebulous state of affairs, however, changed dramatically in 1979 when University of California geologist Walter Alvarez reported finding a sterile band of clay devoid of fossils in a set of limestone deposits in Italy. The band, continuous over a large portion of the Earth's surface, marked the Cretaceous-Tertiary boundary, the time of the great extinction. With the assistance of Luis Alvarez, his father and a Nobel physicist, Walter determined that the clay was 30 times richer in the rare element iridium than the layers above or below. Its source? Very likely an asteroid that slammed into the Earth, tipping the scales against the dinosaurs.

Wilford captures the scientific excitement that swirls about this intellectual adventure and other theories that it has generated. Among them is the death-star hypothesis—the idea that some extraterrestrial event has regularly caused mass extinctions over the last 250 million years. "The new focus on extinctions, inspired in no small part by the Alvarez hypothesis," Wilford writes, "is producing a transformation in thinking about...evolution." It has caused scientists to begin thinking that competition among species has less to do with change than extinction does. In this new view, upsets of climate or geology or even extraterrestrial assaults may provide explanations for what drives the evolution of life.

All told, Wilford gives us a magnificently informed overview of paleontology and highlights how science itself evolves at a tempo much like the fits and starts in the fossil record that paleontologists call punctuated equilibria. He conveys a great deal about what we have learned of the origins and development of our own species, of species long since absent from the Earth and of the Earth itself. He has delivered himself of a paean to the dinosaurs and their resurrection that sings highly of them and of us. ♦

Alfred Meyer is a contributing editor to Science 86 *magazine.*

DANCE

Defying Gravity

By Allen Robertson
From BALLET NEWS

Trisha Brown has never taken anything for granted, not even gravity. From the outset in her formative days at Judson Dance Theatre in New York, Brown has probed all kinds of gravitational problems. She devised pieces with dancers rigged in harnesses and then had them cantilevered from museum walls, even from the tops of buildings or from trees. The choreography for these pieces consisted of the incongruity of bodies precariously sticking out parallel to the ground and moving along the gallery walls (at the Whitney Museum), walking down the facade of a building (in lower Manhattan), or spiraling around tree trunks (outside the Walker Art Center in Minneapolis).

The obsession with gravitational pull reached its zenith—and simultaneous nadir—at a climactic moment in *Pamplona Stones*, a mid-1970s dialogue-laden duo for Brown and Sylvia Whitman. Heaving a large rock into the air as high as she could, Whitman commanded the falling stone to freeze in mid descent. "Stop rock!" she shouted. Naturally the rock paid no heed, and the audience laughed, as it had been meant to do.

Brown's wildly popular *Set and Reset* (1983) begins with a dancer running across the stage, leaping into the wings and getting stuck there, an illusion of being suspended in midair. She's been caught in a lift with head and arms in the wings and her spraddling legs still protruding onstage. But these days, Brown has decided it's much more fun to play with gravity than try to commandeer its natural functions.

"There has always been a certain wry humor evident in my work," Brown admits. "But ever since the end of the Grand Union experience, I have tried to keep cartoon jokes out of my work."

The Grand Union was an improvisational collective vital to the evolution of "new wave" dance in the United States. Its members (Brown, Yvonne Rainer, David Gordon, Steve Paxton, Douglas Dunn, among them) have gone on to become some of the leading exponents on the 1980s dance scene. "Toward the end," recalls Brown, "every performance of the Grand Union involved nonstop puns. Even when I had tears in my eyes, somebody was trying to make a joke out of it." But with *Set and Reset* and the new *Lateral Pass* (which had its New York debut in the fall of 1985 following a world premiere in Minneapolis and preceding a public-television taping in Los Angeles), the comedic juices are again flowing freely.

Set and Reset has designs and costumes by Robert Rauschenberg plus a score by Laurie Anderson. The movement is free and fluent, slippery as an eel and as enthusiastic as a pack of otters cavorting in a snowfall. Liquid, lucid and filled with laughs, it brought down the house in its debut at the Brooklyn Academy of Music, garnered glowing reviews and immediately transformed this veteran of two decades of hard steady work into a celebrity.

Lateral Pass continues Brown's interest in artistic collaborations: visual presentations, including costumes, are by Nancy Graves, with a score by trombonist Peter Zummo and lighting designs by Beverly Emmons. "It is about light and explosions and collisions or, rather," Brown corrects her-

Trisha Brown's *Set and Reset*

Allen Robertson is a staff writer for Time Out *magazine in England.*

self, "lack of collisions. Beyond that, I'm not willing to say. There is nothing worse than to set up people's expectations and then not fulfill them."

She is willing to admit, however, that *Lateral Pass* continues her exploratory rummage through the trappings of traditional theater space. After years of working primarily in alternative spaces—art galleries, studios, lofts and open-air sites—Brown has now taken on what she refers to as the "furniture of the theater." She's trying to find out about the wings, curtains and orchestra pit, as well as the spaces above the stage and the pipes and lighting equipment.

Her solutions for *Set and Reset* may not be entirely orthodox, but they are pursued with comedic vengeance. Rauschenberg designed special side curtains that are translucent (as are his floppy pajama-like costumes). This allowed the dancers to be onstage and off at the same time, seen and unseen—a pun Brown particularly loved playing. Rauschenberg devised the set so that it floated above the dancers, occupying one of the unused taken-for-granted spaces that Brown is keen on exploring. Perhaps the most brilliant stroke was the way Rauschenberg and the lighting designer Emmons contrived to have the film images that flicker across his floating sculptures appear to be the light source of the dancing space.

Why has Brown moved from the stripped-bare rigors of her earlier works of the 1970s into the lush collaborative splendors of the current pieces? "I finally woke up to the fact that not using the conventions of the theater is a distraction," she explains. "It simply gives certain parts of the audience a bone to gnaw on."

Her future now seems on more solid footing than ever; international tours are shaping up, including the possibility of Brown and company being the first American modern dance troupe to visit China. Yet Brown feels she must struggle to hold both feet on the ground. She still can't forget that gravity isn't to be totally trusted. For her, fame is a "slippery critter" capable of biting back. ♦

ART

Perception and Process

By Michael Brenson
From THE NEW YORK TIMES

Few contemporary artists are more controversial than Jennifer Bartlett. To her many defenders, her work is immensely ambitious and endlessly rich and inventive, and her serial, cinematic and novelistic approach has pioneered new ground for painting. Her detractors believe that she has flaws as a painter, that her work is weakened rather than strengthened by its eclecticism and that no matter how large and ambitious it is, her painting is only skin-deep.

Bartlett is such a prominent and controversial figure because her work is filled with challenging paradoxes and contradictions. She has used a deliberate, almost manically controlled method identified with the art of the 1960s to release an energy and irrationality that may have more in common with the art of the '80s. She has tried to be both impressionistic and systematic, both true to the moment and true to the unfolding of time. She wants her pictorial performances and celebrations of process to have the weight of masterpieces.

The collisions do not stop here. Bartlett wants to plunge into the world around her while remaining afloat in the modernist world of surfaces and reflections. Her work is defiantly resistant to being tamed and confined to any category and place, yet it is filled with references to furnishings, interior design and home.

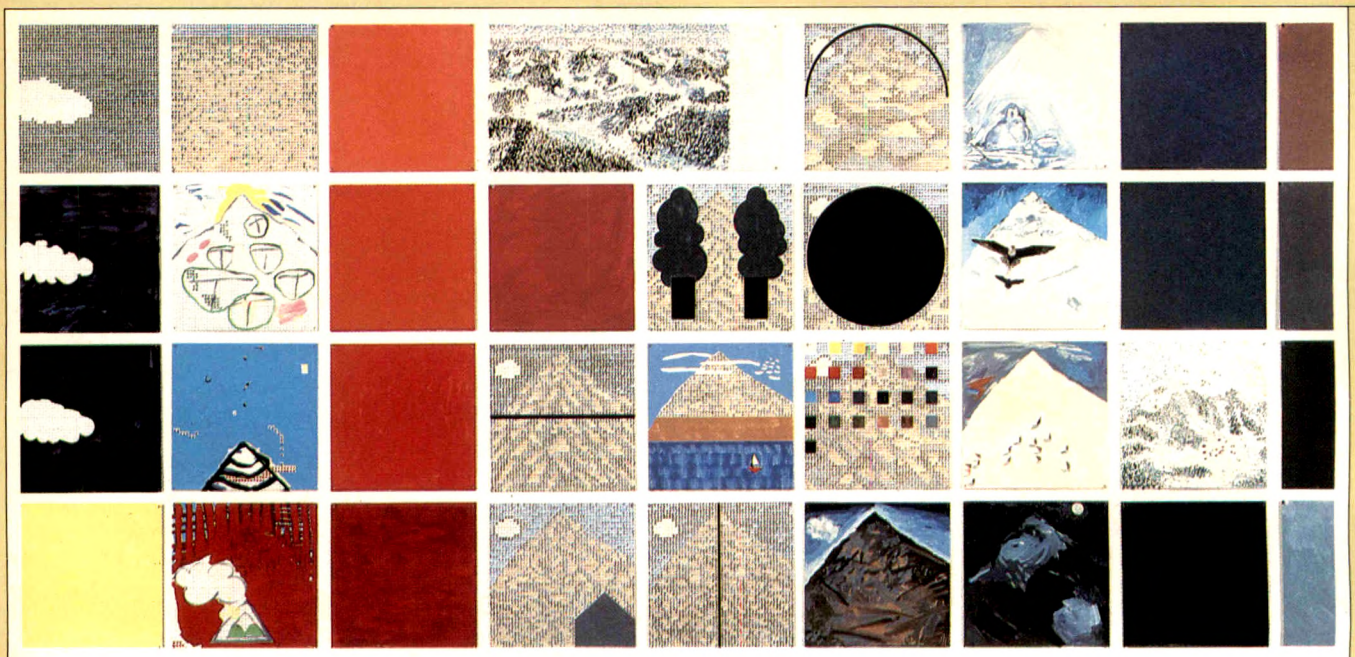
Michael Brenson is an art critic for The New York Times.

The best opportunity so far to come to terms with Jennifer Bartlett is the retrospective of her last 15 years, which will be seen in Brooklyn, Kansas City, Pittsburgh and La Jolla, California. With 40 large-scale paintings, 50 drawings and a section devoted to Bartlett's commissions, it is larger than the exhibition of her work at the Walker Art Center in Minneapolis in the spring of 1985. It is accompanied by a book-length catalog with contributions by Calvin Tomkins, Marge Goldwater, who organized the show for the Walker, and Roberta Smith, whose essay is particularly helpful.

The exhibition begins with the serial works in which Bartlett used dots painted on 30-centimeter-square steel plates to explore ideas about art and the workings of the mind. In her 1970 "House Piece," the dot patterns not only focus our attention, as minimalism did, on the visual field, but they also make us aware of conflicting emotional responses to the idea of a house.

Bartlett's development of a systematic method to make us focus on perception, on process, on the effect of shifting perspectives—and on the leaps that take place in our minds no matter how rational we may think we are—culminates in her 1975-76 "Rhapsody." In this, her most celebrated serial piece, 988 painted tiles installed on all of the gallery walls create an environment. There is more color in this work, a greater range of imagery and a clear sense of the artist's concern both with the instant and with the passage of time.

Since then, the pictorial gestures have become broader, and Bartlett's approach has become increasingly more painterly. But even with her "In the Garden," "Creek" and "Sea Wall" paintings, there remains a horror of a vacuum—something that feels like a terror of silence and empty space. Bartlett also continues to maintain her particular dialogue between looseness and control, sloppiness and rigor. Since 1984 she has been placing on the floor three-dimensional mirror versions of objects that appear in her



Detail from "Rhapsody" by Jennifer Bartlett, 1975

Harry N. Abrams, Inc., Private collection, courtesy Paula Cooper Gallery

paintings. The recent paintings and objects in the current exhibit seem one step from the landscapes of Monet and one step from the urban art playpens of Keith Haring.

One question this work raises has to do with the artist's drawing. Good drawing not only situates an object in space, but it also situates a work within an existing artistic category. Even if we are sympathetic with Bartlett's determination not to make painting or sculpture in a traditional way, is it possible to give ourselves consistently to work if it is not spatially convincing and if it is clear that the artist did not want to dwell on detail?

Can we continue to believe that ideas are worth pursuing if the works in which they are presented lack the sense of scale that is invariably a clue that an ideal is in some way finished? Certainly the strength of Bartlett's work has a great deal to do with its need to be everywhere and race in many directions at the same time. But is that not also part of its weakness?

Work this ambitious is going to raise questions. While there is curiosity and immense patience in Bartlett's works, they also seem to be airless. Partly as a result of the artist's commitment to surfaces, there is no sense of space in these paintings and no sense that anything in them actually exists. In other words, with all the lush textures and passion for houses, water and trees, in the end the world seems to exist only in the artist's imagination.

When something outside the artist actually appears to erupt within the paintings, there is a sense of power and release. In the 1977 "Graceland Mansion," for example, a five-part painting in which a house changes identity according to the style and perspective with which it is presented, the gallery wall seems to burst through the interstices between the painted steel plates and all but shatter the images.

In the 1983 "Shadow," there are intimations of at least a dozen faces within the inflamed cypress trees behind the swimming pool. They are wild and irrational images, bringing to mind heads by artists like Holbein and Picasso. Here there is a sense of being allowed to enter the work, of being able to understand what lies behind the dread of silence and space, of being able to hear a voice that seems consistently to be trying to speak. ♦

PSYCHOLOGY

Thinking About Thought

Howard Gardner, *The Mind's New Science: A History of the Cognitive Revolution*. Basic Books. 423 pp.

By Paul Chance
From PSYCHOLOGY TODAY

Somewhere in the great marsh of unwritten history, there was a moment in which one of our kind stared into space and became the first person ever to wonder about

Paul Chance is a contributing editor to Psychology Today *and author of* Thinking in the Classroom.

the matter of mind: how does one come to know the world? Are we born with knowledge? How can we distinguish reality from illusion? The person who first asked these and similar questions has had a long line of wondering descendants, but it has only been in the last hundred years that they have begun to speak of a science of mind. Now Harvard psychologist Howard Gardner, an influential researcher into human creativity and the author of *Frames of Mind: The Theory of Multiple Intelligences*, has written its history.

In *The Mind's New Science* Gardner describes the emergence of a new field called cognitive science. As Gardner sees it, cognitive science is an empirically based effort to answer epistemological questions. The goal of this new science is nothing less than to explain human knowledge.

Gardner identifies five "key features" of cognitive science: first, the belief that "human cognitive activity must be described in terms of symbols, schemas, images, ideas and other forms of mental representation." This sets the new field firmly in the traditions of both ancient thought and contemporary common sense. Second, the tendency to look upon the computer as a tool for studying, if not a model of, the mind: "Skepticism about computers generally leads to skepticism about cognitive science." Third, "de-emphasis on affect, context, culture and history." Problems are studied so that "an adequate account can be given without resorting to these murky concepts." Fourth, a belief in interdisciplinary research. An independent cognitive science "remains far off"; for now, people from diverse fields must work together. Fifth, a "rootedness in classical philosophical problems." Whether they realize it or not, Gardner maintains, cognitive scientists are attempting to answer fundamental philosophical questions.

It should be clear from these features that cognitive science is not merely a new name for cognitive psychology. Rather, it is a new field whose practitioners come from philosophy, artificial intelligence, linguistics, anthropology and neuroscience as well as cognitive psychology. At present, most cognitive scientists stand with one foot on the new soil and one foot on more familiar ground. Nevertheless, Gardner seems confident that cognitive science will become an independent science whose practitioners may take their initial training in one of the six foundational fields.

As Gardner points out, the approach of cognitive scientists toward knowledge and things mental stands in stark contrast to that of the behaviorists. The quintessential behaviorist, B.F. Skinner, admits of the reality of what he calls private events, but defines knowledge as "our *behavior* with respect to the world." Knowledge, in other words, is what we do. We know that $2 + 2 = 4$ when we are able to answer the question, How much is $2 + 2$? or when we are able to make use of this fact in the process of, say, solving a multiplication problem. This approach is very different from that of the cognitive scientist, who makes the private event itself the object of study.

For reasons that are unclear, Gardner believes that the rise of cognitive science depends upon the fall of behaviorism, and he writes with undisguised joy about "the demise of behaviorism." Despite Gardner's repeated attempts to declare behaviorism dead, however, all indications are that it is alive and well. Indeed, its influence is felt even in the new cognitive science. These two great forces are best viewed not as alternative ways of dealing with a subject, but as different subjects. Behaviorism (or behavior analysis, as it is often called today) sets as its goal the explication of the relationship between environmental events and behavior. It is a natural science, like biology, with which it has much in common. Cognitive science has as its goal an understanding of the nature of knowledge. It is a social science, like history.

Students of cognitive science would do well to study Gardner's book. Serious students of the field may complain that Gardner has relied far too heavily upon secondary sources, and some may fault him for failing to integrate the diverse areas of cognitive science. More casual readers will groan that the book assumes too much background knowledge. But all will agree that *The Mind's New Science* is a comprehensive history of the field, an important effort to think about where cognitive science came from, where it is and where it is headed. ♦

HISTORY

A Man of Letters

Thomas Jefferson: Writings, edited by Merrill D. Peterson. The Library of America. 1600 pp.

By Henry Steele Commager
From The New York Times Book Review

"Thomas Jefferson still survives," John Adams said, as he expired, dramatically, on the 50th anniversary of the Declaration of Independence. And while Jefferson, in fact, died on that same Fourth of July, he does indeed survive, as Merrill D. Peterson's selections from Jefferson's writings testify. It was courageous of the editors of the Library of America to try to give us Jefferson in one volume. They have managed to make available the largest and most skillfully edited single-volume Jefferson ever published. This useful collection contains Jefferson's autobiography, public papers, messages to Congress and address-

Eminent historian Henry Steele Commager is the author of Jefferson, Nationalism and the Enlightenment.

es as well as innumerable letters—785 pages of them. Taken together, these works are a remarkable demonstration of why—after more than a century and a half—Jefferson still lives.

He survives in the nation whose independence he proclaimed and over which he presided; in the vast expanse of it that he achieved through the purchase of the Louisiana Territory; in the reports on the explorations of the nation's riches by the expeditions he launched under Lewis and Clark and Zebulon Pike and half a dozen others. All the pertinent papers are reprinted here—the Declaration of Independence, which Jefferson drafted, the announcement to Congress of the Louisiana Purchase, his letter to the astronomer David Rittenhouse begging him to abandon public life and return to his observatory—and all still ring with confidence.

Here we can read how, as elder statesman in James Monroe's Administration, Jefferson inspired and persuaded John Quincy Adams and Monroe to adopt the policy toward Spanish America known as the Monroe Doctrine. Here are his proposals for a system of education for the state of Virginia and for the University of Virginia, which, more than any other such institution in U.S. history, is the extended shadow of one man. Aptly, the Library of America gives us Jefferson's writings on the Library of Congress, which he created and helped stock from his own vast private library. That Jefferson was America's first historian is evident in that first masterpiece of American historical literature, the *Notes on the State of Virginia*.

Perhaps Jefferson himself is happiest to be remembered as the father of American agriculture. "Cultivators of the earth," he wrote in the *Notes*, "are the most virtuous and independent citizens," and, again, "no occupation is so delightful to me as the culture of the earth." He was also one of the first champions of the Indian, a cultural anthropologist who formed the most complete collection of Indian languages in the country.

Jefferson was a central figure in two areas that for generations troubled the American conscience—and still do: the relations of church and state and the heritage of slavery. He inspired and, with his colleague James Madison, carried through Virginia's famous Statute of Religious Liberty of 1787, and it was he who, in his letter to an association of Baptist ministers, coined the phrase "a wall of separation between Church and State."

As for slavery, he regarded it as the deepest and most threatening evil in American life and contributed more to its alleviation than any man of his age, proposing the prohibition of slavery west of the Allegheny Mountains, urging emancipation in Virginia and signing, in 1807, the prohibition of the slave trade. In his lifelong campaign against what others have called the "peculiar institution," he avoided euphemisms and called it "an abominable crime" and "a perpetual exercise of the most boisterous passions."

"Politics is the divine science, after all," wrote John Adams, who somehow never mastered it. Though Jefferson was a bit suspicious of divinity, he agreed that "the creation of a proper political system was the whole object of the Revolution." As a classical scholar, he used the term *politics* as Plato and Aristotle had used it, to describe the statesman's search for virtue and happiness. The chapter of history that Adams and Jefferson wrote was assuredly the most creative in the history of politics. How sobering to recall that every major political institution the United States now possesses was invented before the year 1800 and that not one has been created since. Making a nation was new (none had been deliberately created before); popular self-government was new; successful federalism, separation of powers, judicial independence and judicial review were new. The "exact subordination" of the military to the civil power was new, and so too that most revolutionary of all experiments—the separation of church and state.

Clearly it is Jefferson who is the most illustrious example of the Platonic ideal of the philosopher as king. He was a very practical politician, the true founder of the Democratic Party and its philosopher and master strategist. So skillful was he as party leader and symbol that within little more than a decade of his ascendancy, the opposition party melted away, while his own party flourished for half a century, until slavery destroyed it. That eventuality too he foresaw. "Nothing," he wrote, "is more certainly written in the book of fate than that these people are to be free. If it is left to force, human nature must shudder at the prospect."

Perhaps what strikes us most in these pages is that Jefferson was a man of letters. Not least astonishing is the prodigious volume of state papers, treatises and private letters he somehow managed to write. What is most extraordinary is that from his earliest forays into literature to the end of his long life, his literary style sounded the same notes and that when we read him today, we hear not only the words but the music. If we looked only to the style, it would be difficult to distinguish among the Declaration of Independence, his first inaugural address and the letters of his final years.

How appropriate too that the last letter he wrote before the pen fell from his lifeless hands—a message to the mayor of Washington on the 50th anniversary of the Declaration of Independence—should express his highest hopes for the nation he had helped create: "May it be to the world, what I believe it will be...the signal of arousing men to burst the chains under which monkish ignorance and superstition had persuaded them to bind themselves, and to assume the blessings and security of self-government....All eyes are opened, or opening, to the rights of man. The general spread of the light of science has already laid open to every view the palpable truth, that the mass of mankind has not been born with saddles on their backs, nor a favored few booted and spurred, ready to ride them legitimately." ♦

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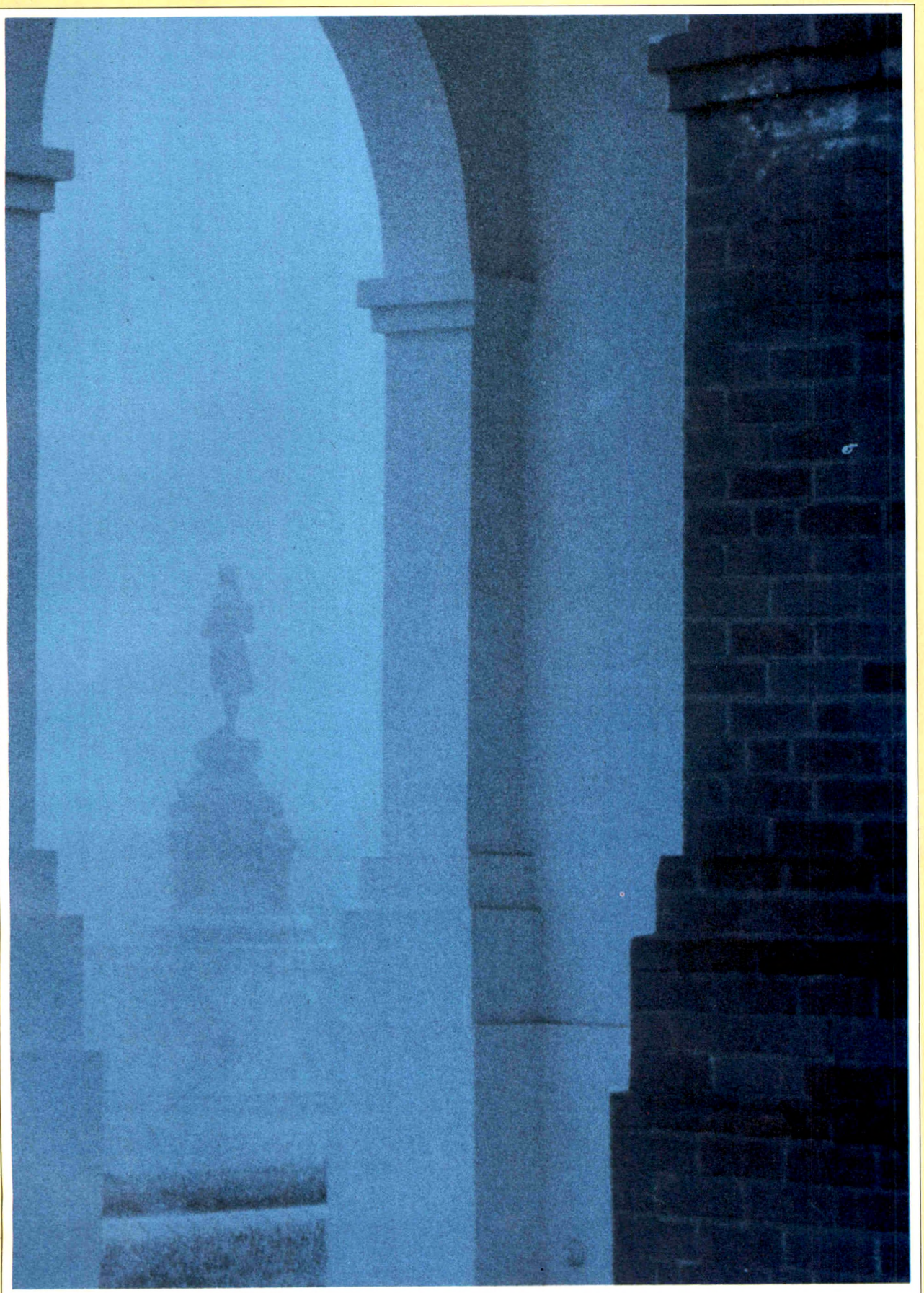
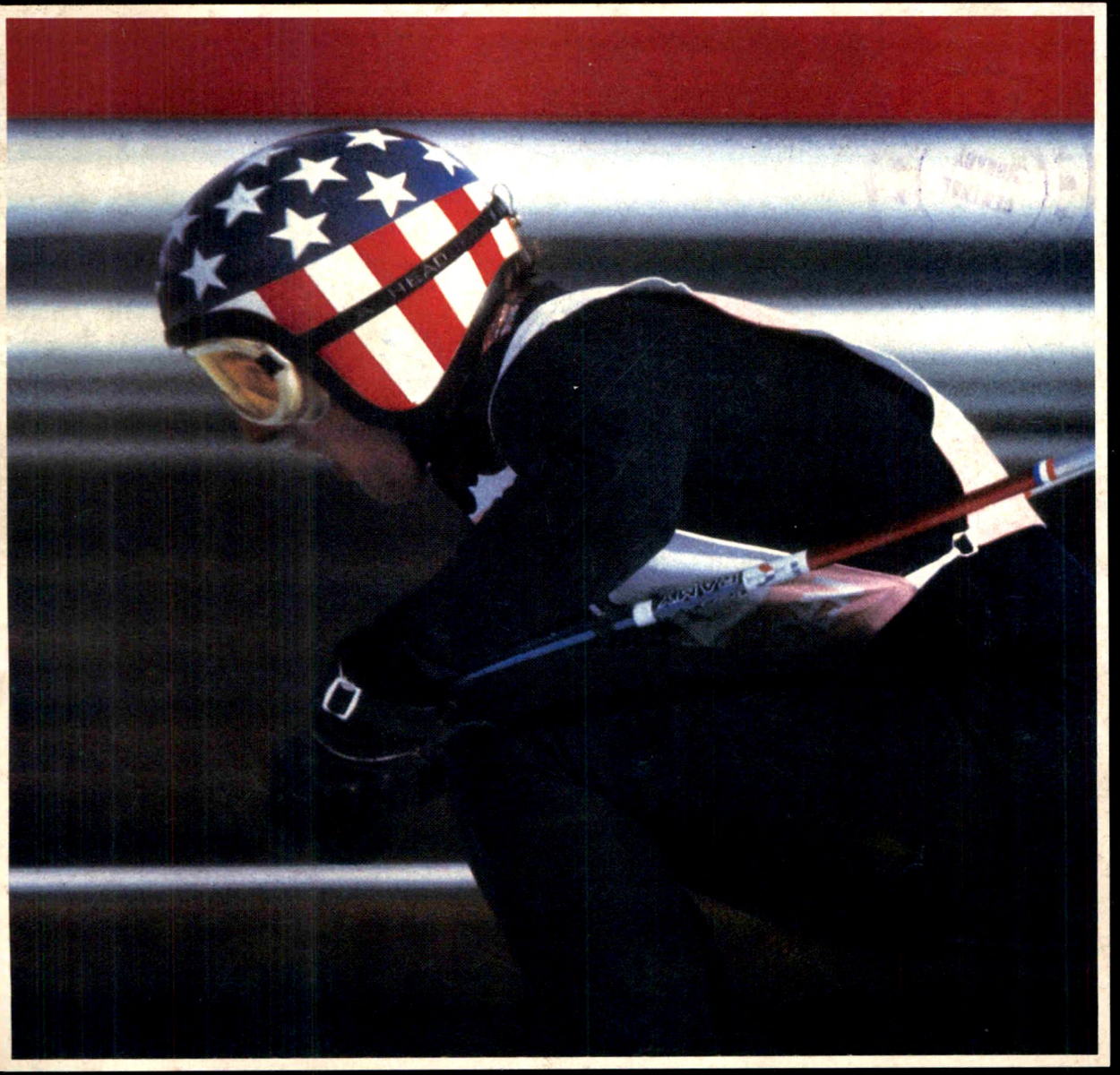


Statue of Thomas Jefferson at the University of Virginia

THE AMERICAN REVIEW

4/1986



COVER: Olympic skier Billy Kidd during downhill race (see page 44). Photograph by Neil Leifer/ *Sports Illustrated* Pictures © Time Inc.

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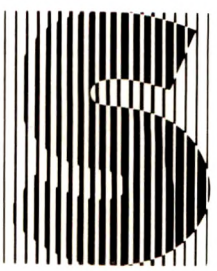
TABLE OF CONTENTS

THE ROLE OF TECHNOLOGICAL INNOVATION

More rapidly, and perhaps more profoundly than at any time in its past, American society is being transformed by developments in technology. But where do these developments originate? What sort of creativity must be applied, what manner of risk must be taken? And how, at last, does a technological advance make its way from the laboratory to the marketplace? This special section of Review *examines the roles of those who contribute to technological innovation—scientists, engineers, inventors, manufacturers, venture capitalists, entrepreneurs.* □ *John P. McKelvey opens the section by tracing the interplay between scientists—those involved in "pure" research—and engineers, who apply the lessons of the laboratory. Yet, as McKelvey, a professor of physics at Clemson University in South Carolina, notes, engineers have often begun the process by providing scientists with the tools that made these breakthrough discoveries possible.* □ *Next, in an interview, historian Thomas P. Hughes contrasts "the era of heroic invention," when independent inventors such as Thomas Edison and Elmer Sperry were at the center of technological change, with the vast corporate laboratories and research teams of today. Following this interview are photographs of landmark inventions from the collections of the Smithsonian Institution in Washington.* □ *In the last article, business writer John W. Wilson points out how transforming basic discoveries into useful products requires financial innovators willing to risk large amounts of capital on new technologies. The venture capitalists and entrepreneurs who create today's new companies display the same kind of inventive thinking and adventuresome spirit that marked the Edisons and Sperrys, innovators of other times.*

Scientists and Engineers

By John P. McKelvey
From TECHNOLOGY REVIEW



Scientists and engineers attend the same universities, sit in the same classrooms and study the same textbooks. They even speak the same language—though in different versions, wherein different words are used to express the same ideas. But the interests and objectives of scientists and engineers are fundamentally different. Scientists are concerned with concepts, theories and explanations, while technologists tend to emphasize tangible processes, products and results. Engineers worry about costs, regulatory decisions and patent protection, while scientists are interested in theories, experiments and predictions.

Most branches of technology trace their ancestry to one or more of the pure sciences—chemical engineering to chemistry, electrical engineering to physics, computer science to physics and mathematics. Countless technological spinoffs have stemmed from advances in pure science. Indeed, there is sound justification for the traditional wisdom that engineers and technologists adapt science to meet human needs.

Scientists have good reason to be proud of the useful technology that has developed in the wake of fundamental scientific advances. The contributions of physicists like James Clerk Maxwell and Heinrich Hertz in establishing the possibility of communication using radio waves, William Shockley, John Bardeen and Walter Brattain in developing solid-state electronics, and Charles H. Townes

and Arthur Schawlow in inventing the laser are but a few of the more obvious examples of this relationship between science and technology.

Instances of the reverse process are harder to discover. For though engineers have sometimes succeeded better than scientists in publicizing their achievements (many people think Guglielmo Marconi rather than Hertz "invented" radio communication, for example), the history of science and technology has by and large been written by scientists. Many of these chroniclers have been slow to credit the role of technology in spurring the growth of pure science.

The oft-neglected fact, however, is that the development of pure science has not infrequently been enhanced by technological innovation involving little or no scientific input. Yet today science and technology enterprise is highly structured around the conventional wisdom that technology's role is to capitalize on scientific results for human use.

Danish physicist Hans Christian Oersted's discovery of the magnetic field associated with a current of electricity is an excellent example of a technology-driven scientific discovery. It was in 1819 that Oersted found that the needle of a compass deflects when an electric current passes through a coil surrounding the device. Why 1819? Because by then it was possible, using "voltaic cells" (batteries), to set up a steady electric current in a circuit. The voltaic cell, however, was a purely technological innovation based on very little scientific understanding. Its origin lay in the discovery by the Italian physiologist Luigi Galvani in 1786 that the muscles in the legs of dead frogs contracted when placed in a circuit containing dissimilar metal electrodes and an electrolyte. Galvani attributed this to an effect called "animal electricity."

However, Italian physicist Alessandro Volta soon challenged this idea, suggesting that "galvanic action" was due to the contact between dissimilar metals. Although more reasonable, this idea was equally incorrect. Even so, in 1800, Volta succeeded in making a reliable battery using discs of dissimilar metals separated by pads moistened with a saline electrolyte. Though a good scientist, Volta did not understand that the action of his cells depended upon a chemical reaction and the transport of ions through the electrolyte. In fact, not until 40 years later did English chemist and physicist Michael Faraday correctly explain how this battery worked. Thus, galvanic action and the electrolytic cells that used it were discovered purely by experimentation, guided hardly at all by science. Because of these advances, however, Oersted had everything he needed to discover the magnetic field surrounding a conductor in 1819.

Similar examples in the history of science are more common than usually supposed. In seeking them out, it is often useful, as in the case of Oersted's experiment, to inquire about why a particular scientific development occurred when it did.

There is ample evidence, for example, that the intellectual ferment that began near the end of the 15th century brought forth both the spirit of inquiry and the rational mindset that produced the discoveries of Nicholas Copernicus, Tycho Brahe, Johannes Kepler, Galileo Galilei and Sir Isaac Newton. Accordingly, historians usually trace the origins of modern science to the Renaissance. However, this era of discovery was also made possible by two simple devices invented much earlier and for which science can claim little or no credit. They are the clock and the lens.

The modern science of mechanics, which involves the geometry of space, time and motion, began when instruments became available to accurately measure time intervals. The "clocks" of the ancient world, such as the sundial, the clepsydra and the hourglass, were practically useless for this purpose. What was needed was a more precise and manageable device, such as the escapement driven by weights or springs invented anonymously in Western Europe near the end of the 13th century. Of course, scientists such as Galileo and Christian Huygens adapted the pendulum as a regulating element to make clocks more accurate. However, the basic idea of the escapement had been there all along.

The lens was an artifact of antiquity. The Greeks and Romans used solid crystal spheres or hollow spherical vessels filled with water as magnifiers and burning glasses. Artisans had learned how to grind and polish glass by 1300 A.D., and spectacles came into common use in Europe shortly thereafter. Although the invention of the telescope has sometimes been attributed to Galileo, who built his first instrument in 1609, the States-General of the Netherlands granted a patent on a telescope in 1608 to Johannes Lippershey, an obscure optician. Some say Lippershey had borrowed the concept from another Dutch optician named Zacharias Jensen. In any case, Galileo's first telescope was not built until news of the Dutch device reached him.

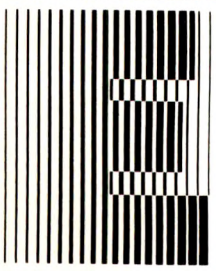
The opticians did not understand how their instrument worked. Indeed, the law of the refraction of light was not clearly understood until Dutch mathematician Willebrord Snell stated it in its present form in 1621. In spite of this, the early telescopes worked well enough to provide—with the escapement-driven clocks devised in the 13th century—the means for developing the sciences of mechanics and astronomy. The fact that Newton formulated the mathematical laws of motion and gravitation within 75 years is hardly surprising.

Similarly, the photographic process is one of technology's outstanding gifts to science. It would be gratifying for a physicist like myself to report that photography was made possible by scientific understanding of the action of light on silver halide crystals. But this is simply not the case. The photographic process resulted from a series of inventions in the 1820s and '30s by the French physicist Joseph Nicéphore Niepce, the inventor and painter Louis J.M. Daguerre and the British scientist William H.F. Talbot. It developed further through a process of trial and error by artists, artisans, chemists, inventors and amateurs of every conceivable sort abetted by scientists of many different backgrounds, including Scottish physicist James Clerk Maxwell, who made the first

color photograph in 1861. Though by 1870 the photographic process had evolved into a useful and versatile technology, none of its inventors had even then much understanding of the physics and chemistry on which it was based. Indeed, some of these processes are still not clearly understood today.

In contrast, the technologies of electricity, magnetism and electronics owe a great deal to pure science. Most common circuit elements and simple electrical machines—electromagnets, inductors, capacitors, dynamos and motors, induction coils and transformers, transmitters and receivers of radio waves, and instruments for measuring current, voltage and resistance—are the direct result of the work of scientists. Among those involved were Oersted, Faraday, Maxwell and Hertz. Some of these scientists doubled as electrical engineers before that discipline was established in its own right around 1880.

Yet striking examples of the inverse process—in which science contributes little and cut-and-try experimentation a great deal—can be found even in this field. Electric lighting is one case. Early efforts to produce satisfactory incandescent lamps failed because filament materials and the vacuum technology were inadequate. These difficulties were finally surmounted by Thomas Edison, who developed a practical incandescent light in 1878.



dison, perhaps the quintessential technologist, lacked formal education. His understanding of literature, art, history and philosophy was superficial, and—despite the fact that he had invented the phonograph and founded a recording company—his musical taste was abominable. He is therefore sometimes regarded with disdain by academic scientists, who often forget that his ingenuity, inquiring spirit and tireless efforts contributed significantly to many disciplines. Edison mastered the fundamentals of electricity and magnetism and became a creative and wide-ranging experimenter. He was the first to describe the thermionic current that could be made to flow between an incandescent filament, such as that in his electric light bulb, and an auxiliary "plate" placed within the evacuated bulb—a "diode." This work opened the way for the later scientific achievements of Wilhelm Röntgen, the discoverer of X-rays. All thermionic devices are, after all, descendants of Edison's incandescent lamp.

Throughout the history of science, the unplanned and unexpected have been as important as what is confidently sought and accurately predicted. And now, as in the past, technology is driving science as fast as it is being driven by science.

In a somewhat similar scenario, the American inventor Lee de Forest stumbled upon his "audion," or vacuum-tube triode, in 1906—a development that was to revolutionize communication. J.A. Fleming, professor of electrical engineering at the University of London and advisor to the Marconi Wireless Telegraph Company, had just developed a high-vacuum diode detector of radio waves for wireless communication. This detector used the unidirectional current that Edison had observed 20 years earlier. Fleming correctly ascribed this current to a flow of electrons; indeed, it was he who introduced the word *electron* into the English language.

De Forest began a search in 1904 for a system of wireless communication that would not be covered by patents taken by Marconi on Fleming's device. His early attempts duplicated some of Fleming's work, though he did not understand that the currents he utilized were electronic rather than ionic or molecular in origin. When de Forest finally tried inserting a "grid" electrode between the filament and plate of an Edison-Fleming diode, he made the landmark discovery that the flow of current in the plate circuit could be controlled by a signal applied to the grid. He described his "audion" in a vague and discursive paper presented to the American Institute of Electrical Engineers in 1906, and filed a patent on the device and its circuitry in 1907.

The importance of this development did not immediately dawn upon the technical community. But de Forest's patent was finally acquired by Bell Telephone Laboratories, where efficient and reliable triode tubes were soon developed to perform a wide variety of communications functions. The resulting devices included radio transmitters and receivers, audio amplifiers, and a long list of valuable scientific instruments such as electrometers, photodetectors, particle counters, timing circuits, oscilloscopes and, ultimately, digital computers.

The cyclotron, invented by U.S. physicist Ernest Lawrence in 1930 to accelerate protons and other charged particles, was a contraption developed by a scientist for scientific purposes if there ever was one. But why 1930? Because the cyclotron is basically a big vacuum tube—one that relies, moreover, upon a powerful radio-frequency transmitter to excite the particles. By 1930, de Forest's "audion" technology had developed to the point where these elements were readily available, and Lawrence had no trouble finding the hardware needed to build his accelerator.

The relationships between scientists and technologists were informal and sometimes quite accidental in these historical examples. Each group influenced the other without any specific plan to do so. Such a relationship persisted for centuries, changing only around 1900, when a few companies such as AT&T, General Electric, Westinghouse and du Pont established good research laboratories. Important government facilities such as the National Bureau of Standards in the United States and the National Physical Laboratory in Britain were also set up about that time. In these laboratories research proceeded along well-defined disciplinary paths that

put engineers in the role of consumers of scientific understanding.

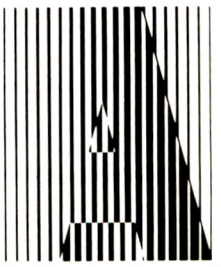
This pattern suddenly changed during World War II in response to demands for highly sophisticated weapons and defense systems. These needs had to be satisfied very quickly, and meeting them required both new science and new technology. Ideas at the forefront of scientific research had to be applied immediately. Huge laboratories and production facilities grew up almost overnight.

Under these sharply changed circumstances, engineers and scientists had to work and even live together, and they often had to do each other's jobs. Disciplinary lines usually meant little or nothing. Because the projects were large and their goals vital, research and development were planned and administered on an unprecedented scale. But still it was anticipated that scientific advances would provide the foundation for new technology.

This paradigm was strongly reinforced by the success of these activities as their programs were reorganized after the war. The result was a science-and-technology enterprise much more centralized and structured than ever before. Government funding and planning of research and development and even of scientific and technical education became the norm. Universities, industries and private research institutes found themselves at once in close cooperation and also in earnest competition for the federal dollar. This situation wasn't restricted to the United States; it also prevailed, to greater and lesser degrees, in other Western nations. Essentially all these programs were based upon the paradigm of science as the driving force for technological innovation.

How has this new structure affected the ability of the independent, self-educated technologist to contribute in the tradition of Lippershey, Edison and de Forest? The perspective of time will be needed to answer this question fully. However, it is not too soon to make some preliminary observations.

The present highly centralized system has succeeded beyond expectation in promoting science-driven technology. Recent advances in microelectronics, optical communications, computing and genetic engineering are obvious examples. The inverse process—wherein technology returns new resources for advances in pure science—is also thriving. Recent advances in computer simulation, for example, are important in aiding basic scientific research.



less satisfactory result of the highly structured research-and-development effort is that risk taking is not encouraged. All the planning and funding of basic science provided since World War II have not changed its intellectual framework to the same extent as, say, the discovery of relativity and quantum physics did in prewar years. Today's scientific work is sophisticated, arcane, complex beyond belief—but safe. One does not, for example, try to discover whether quantum physics has its limitations, and if so where they lie. It simply doesn't pay to do so.

Similarly, though private technological entrepreneurship is flourishing, it lacks the diversity of earlier times. It is less easy now than it was 50 or 100 years ago for technologists like Edison—or scientists like Einstein, I might add—to assert their independence. Experimental high-energy physics, for example, requires an incredibly complex grid of technologies, including electronics, nuclear technology, magnetics, cryogenics, new materials, high vacuum, and advanced computers. In physics committees plan research 20 years ahead based on the commitments of machine designers and builders to complete new accelerators.

In this environment the role of the self-educated amateur inventor—an Edison or de Forest—is rapidly vanishing. To be funded as a technologist now, you need not only a fertile imagination and the capacity for hard work but also formal education, preferably on the graduate level. Published research is often credited to dozens of authors and describes the activities of teams containing hundreds of members. Work is organized, directed and funded by the cooperative—and competitive—efforts of numerous individuals, none of whom enjoys the luxury of complete freedom of thought, and all of whom have more stake in its outcome, personally and professionally, than is desirable. Finally, when a Nobel Prize is given it usually goes to a scientist rather than to a technologist!

Under these conditions, the relationship between science and technology, though of great mutual benefit, is not entirely smooth and peaceful. Indeed, there is a polite but earnest power struggle for prestige between scientists and technologists. Both are reluctant to acknowledge this conflict, but its reality can be confirmed by anyone who has competed for federal funding or public recognition in the science-technology arena. This phenomenon, born to a large extent of the postwar circumstances of science and technology, is a threat to the future viability of the independent, self-educated technologist. Indeed, this polite, clandestine power struggle for resources and recognition will probably intensify, and there is little likelihood that we will return to the casual, unplanned, informal relationships of earlier and gentler times.

Throughout the history of science, the unplanned and unexpected have been as important as what is confidently sought and accurately predicted. And now, as in the past, technology is driving science as fast as it is being driven by science. But the opportunities for the individual technologist are not as great as in Edison's and de Forest's times. We need to recall—and foster when we can—the special circumstances from which came such signal advances as the telescope, the incandescent lamp and the vacuum tube. Perhaps we should insist that scientific planners devote resources to a few "obviously" unsound projects and "clearly" unprofitable lines of thought, or that they encourage individual investigators as well as organized groups, however "wasteful" that may seem. A hundred years from now, as scholars look into the story of scientific and technological progress in the last half of the 20th century, will they still find unplanned and unexpected discoveries? ♦

Invention in American History:

An Interview with Thomas P. Hughes

From American Heritage

The inventor sees a machine as "an organic whole made up of interacting parts," says Thomas P. Hughes, a leading historian of technology. Hughes, who was originally educated as an engineer, takes the same view of technology in the context of American history: to study one without the other is to consider only part of the picture. The achievements of successful inventors—whether working independently or in a more structured research environment—inevitably reflect the larger culture of their society; as Hughes suggests, "we express both our virtues and our sins in our technology."

Hughes, author of Networks of Power: Electrification in Western Society, 1880-1930 *[reviewed in* Dialogue *64], is a professor at the University of Pennsylvania, where he teaches a course on "Inventors, Engineers and Entrepreneurs: Technology in American History." He was interviewed by Hal Bowser, formerly an editor with* Science Digest.

Why should people care about the history of American technology?

Most Americans are keenly interested in their history, and I think there is general agreement that, especially in the 20th century, the United States has been as much influenced by technology as by any other single force. If we wish to understand ourselves as Americans, we need to know about our political, ethnic and economic history—but we also need to know about our technological achievements. Because if you scratch an American, you will find, somewhere beneath the surface, a person shaped by technology, a person who is living in a mainly technological society.

We have expressed ourselves magnificently, as a people, through technological achievements. Technology has, for better or worse, deeply influenced Americans, for very complex reasons. Strangely enough, we have not celebrated or critically scrutinized our technological roots as much as we have, say, our political roots.

You've made the point that Thomas Edison, who figures so prominently in technological history, was amazing not only for his inventions but for the systems he devised to make use of his inventions. What's the difference between such a system and an invention?

Well, inventors create a system from their interacting inventions. Edison didn't invent just an electric light bulb, he invented a *whole system for providing lighting*. His inclination, his style, was to take a look at a situation that needed improvement. He would see the situation as a system of components, and he would exclaim, "Ah! There is a weakness in the system as it is now being utilized." Then he would concentrate on overcoming that weakness through invention. He used this approach whether he was dealing with a system of lighting or a system of mining or a telegraph system.

Inventors have this way of seeing situations in terms of interacting problems. They are problem-oriented people, and the systems they invent are their solutions to the problems that they identify.

One point that your book *Networks of Power* makes is that it isn't always easy to transfer technology from one country to another. Why is that?

You remember the book *The Ugly American*? Part of its argument is that Americans assumed then—it was written in the late 1950s—that they knew the *best* way and were generously bringing culture and technology to other peoples. Americans were, that is, imposing their solutions on non-American problems.

I think there is something to that. Engineers, for instance, often assume there is one best way. Certainly in the 1950s and '60s it was widely believed that the "one best way" was American technology. But in fact, technology must fit in with the culture, values, job skills and aspirations of the nation receiving the "transplant." And if people differ, as they do, in their skills, aspirations and general objectives, then the general technology needs to be modified to fit into that culture and fulfill its needs.

I remember stories about Americans insisting that a certain kind of insulation be used on electrical lines in India. The Indians said, "Well, we have various insects and natural forces that would destroy the kind of insulation you are using." And the Americans replied, "Oh, no, we've got the best insulation." So they used it, and sure enough, what with the Indian environment and its particular animal life, they found that the insulation failed to work. In other cases, we exported labor-saving technology to areas in which there was an abundance of cheap labor. The local population would point out that they needed a technology that would allow large-scale employment, even though it might not be as "efficient." So Americans in time readjusted and began to recommend more labor-intensive technology. What I'm saying is that technology is culturally shaped. When you move technology from one culture to another, the technology must be adjusted to fit the new culture.

I use the concept of style to cover the subject that I'm now discussing. Various cultures exhibit various technological styles. A case in point is the small European automobile of the 1950s, a time when Americans were still driving large cars. The small automobile suited the European culture, in which there was a horsepower tax—the consumer was charged according to the size of the car's engine. Therefore, it made sense for Europeans to drive a small car with a small engine. Americans didn't have such a tax, and gas was inexpensive, while for Europeans gasoline was expensive. For Americans to impose large automobiles on Europeans in the 1950s would have been imperialistic. To have imposed the small European automobile on the Americans would have been inappropriate.

In *Networks of Power* you show that electric-power networks, which should have spread like wildfire in Victorian England, actually encountered great resistance. That to me was one of the most startling aspects of your book.

One reason large-scale electric light and power systems did not initially spread into England was that the British highly value their local governments. Patchwork local governments and large, integrated technological systems do not suit one another well. For many years the British protected their local governments by rejecting large, interregional technological systems. So there you have a nice example of a culture defending itself against change brought on by the imposition of a technology that is not harmonious with preexisting values.

You've used the term *reverse salient* to describe lagging, backward areas within an expanding technology. Where does this expression come from? And what would be an instance of a reverse salient?

When I was studying European history in college, one of my most dynamic instructors was discussing the World War I battle of Verdun, and he described a certain deep German penetration of the French lines as a reverse salient. That is, this bulge into the otherwise even French line created a dangerous situation. So the French concentrated their energies on correcting that reverse salient. The image of Verdun remained in my mind as I began to work with technology, studying people like Edison who approached technology systematically, and who looked for the weaknesses in such technological systems as electric light and power networks. I liked the image because, like a battle line, the technological frontier is extremely complicated. Inventors are always examining a system for reverse salients that need to be corrected, just as the French needed to correct the line at Verdun. For Edison the lack of durability in electrical filaments was a reverse salient in the lighting system. Until that filament salient was dealt with, the entire system could not be developed. I preferred the concept of reverse salient to that of a bottleneck because bottleneck is too rigid, too simple. The concept of a military front advancing, then falling back, with attendant irregularities along the whole line—that to me closely resembles technological change.

Have you ever applied the reverse salient idea to present-day technology?

I suppose one example of a reverse salient in technology is the problem of disposal of waste from atomic power plants. We are now faced with the problem of this toxic waste: how will we deal with it? A case of reverse salient.

In the field of computers, I think of the recent reverse salient that one personal computer firm experienced. The consumer was saying, understandably, "Look, I've got a fine piece of equipment here, but I'm not able to fully utilize it because I don't have the software that is appropriate." Well, that's a clear case of a reverse salient. The company that built the computer had pushed the artifact—the computer—ahead of the availability of the software. They had to adjust that relationship.

I think the reverse salient is a concept that is used unconsciously by a number of inventors and engineers. They may not think of what they are doing in terms of reverse salients; they often think of it in terms of identifying problems. But one has to take a systematic view in order to see these problems.

You don't know that there is a problem unless it occurs somewhere along a line or broad front. The reverse salient has to be *behind* something. You can't analyze it if you only look at it as through a microscope. If you looked at Verdun through a microscope, you would say, "What's the problem?" But when you look at the whole system, then you can see what is behind and what is ahead. This is why so many

of the successful inventors are holistic—they are using this concept of the reverse salient, although they may give it another name.

The famous immigrant inventor and pioneering electrical engineer Charles Proteus Steinmetz—rumpled, bushy-haired, physically deformed—has always struck me as an improbable figure. I think it says something for General Electric that the company's executives took him into their corporate setup in the early 1890s and made excellent use of his talents.

Steinmetz is an anomaly. Most inventors and engineers of the 1880s through the early 1900s were rather conservative in dress and behavior, rather conforming in their political attitudes. Steinmetz was a socialist, his clothing was unorthodox, and his behavior was far from commonplace. He grew orchids and was interested in pet alligators. Why did General Electric, which was accustomed to hiring conservative types, take him on? Because, I think, there was some innate sense at General Electric that a large organization, in order to change and grow, needs to cultivate the nonconforming character. After all, what is a major invention but a change in the status quo? General Electric apparently realized that it might become too conservative in its attitudes toward technology—which is to say, in its attitudes toward change—unless it cultivated outsiders, people who saw things differently. I'm sure it was an irritant to the management to have a nonconformist like Steinmetz on the staff. But General Electric dealt with Steinmetz in an interesting way. It took him out of the routine managerial structure and gave him his own organization, which was a small consulting engineering unit. His nonconforming attitudes and behavior were dealt with by giving him a special place, an administrative managerial niche, outside the highly organized, routinized structure. I think that showed great insight on their part.

So if we empty the word *radical* of any political connotation, it would be fair to say there's a place for radical, nonconforming approaches to technology?

Yes, and I think you can make a useful distinction between conservative and radical inventions. Conservative inventions tend to correct reverse salients. Conservative inventors are those who nurture or watch over an advancing system. They scan the front and see where the corrections need to be made. For example, General Motors has been presiding over the development of the automobile. Many of the inventors at General Motors have been conservative in that they are essentially correcting, making minor adjustments in a technology that has a tendency to hold to a set course.

But a radical inventor, like Steinmetz, marches to a quite different drummer. He or she tends to develop systems that are new and different and that are often rejected by the industrial community because they don't fit into a large, ongoing industrial enterprise. Now, people who dream up radical inventions fail more often than the ones who create conservative inventions. So it takes an enlightened management to nurture "radicals" such as Steinmetz.

One striking figure you talk about was the inventor and engineer Elmer Sperry. He never became the household name that Edison is, though their lives overlapped. What made you write a massive biography *(Elmer Sperry: Inventor and Engineer)* of this man, who at the time was so little remembered?

When I was a very young man, Sperry's automatic airplane pilot and his ship pilot were high technology, and he became one of my childhood heroes. When I began to read about Sperry and to go into his papers, I found that he was a superb professional inventor. If today someone asked me who was the more professional, Edison or Sperry, I would have to say Sperry.

I am referring to the esteem in which the other inventors, his peers, held Sperry. One reason for this was that Sperry knew the values of the inventor's craft and he re-

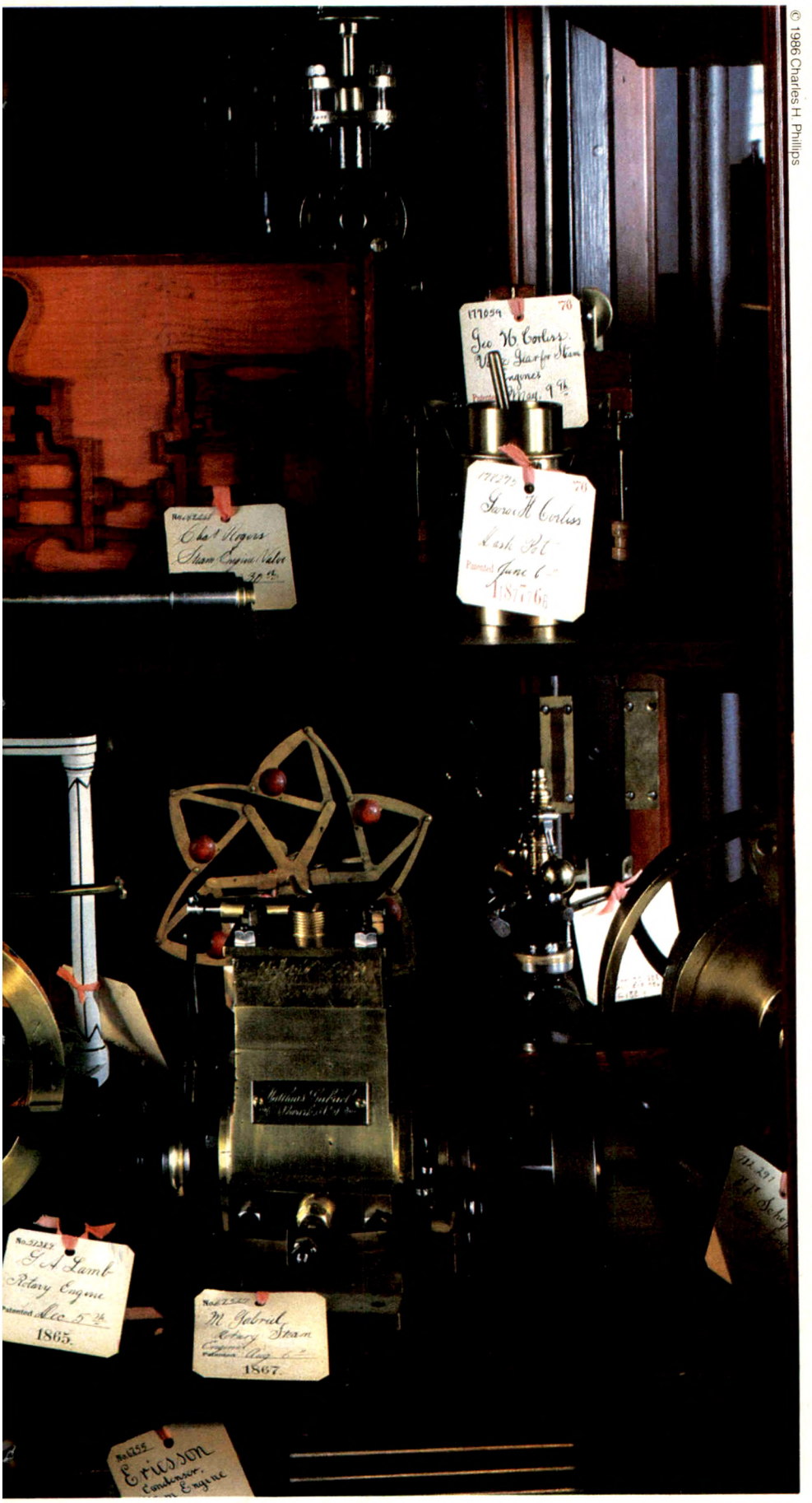
—continued on page 17

A Collection of Inventions

A century ago the American historian and civic leader Charles Francis Adams Jr. called technology "the most tremendous and far-reaching engine of social change which has ever either blessed or cursed mankind." Adams recognized that the consequences of technological change—whether benign or malevolent—would always make new inventions something more than mere machines.

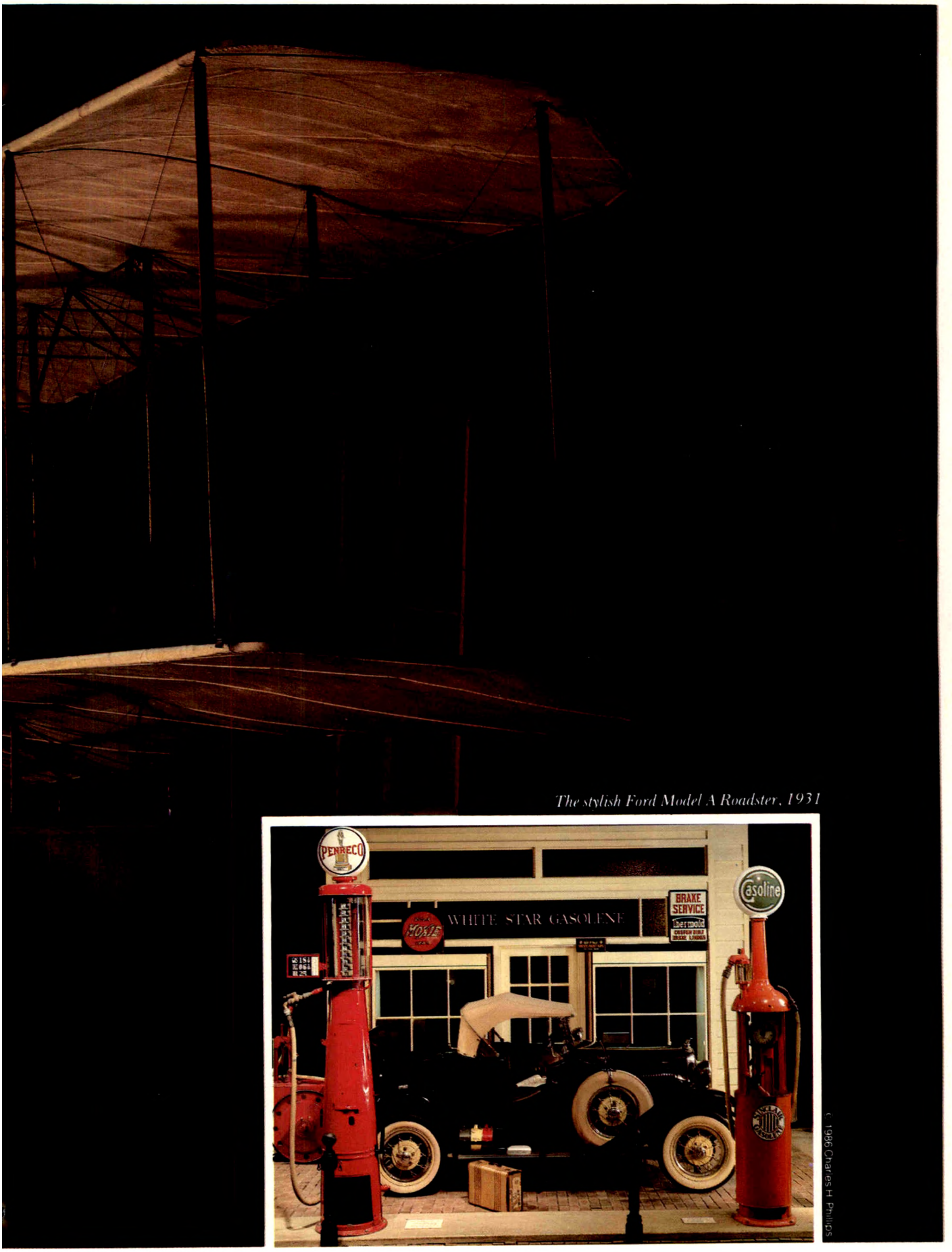
Viewed, however, on their own terms, and appreciated as marvels of ingenuity, craftsmanship or design, machines can take on aspects of art. The inventions portrayed on the following pages are displayed at the Washington, D.C., museums of the Smithsonian Institution—often referred to as "the nation's attic" for its vast collection of significant American artifacts.


No. 12202
W Wright
Steam Engine
Value Gear.
Patented Jan. 24th
1856.
No. 23332
Miller Rotary
Steam Engine
Patented May 3rd
1859.



Diminutive patent models of steam engines, mid-1800s

Wilbur and Orville Wright's "Flyer," 1903

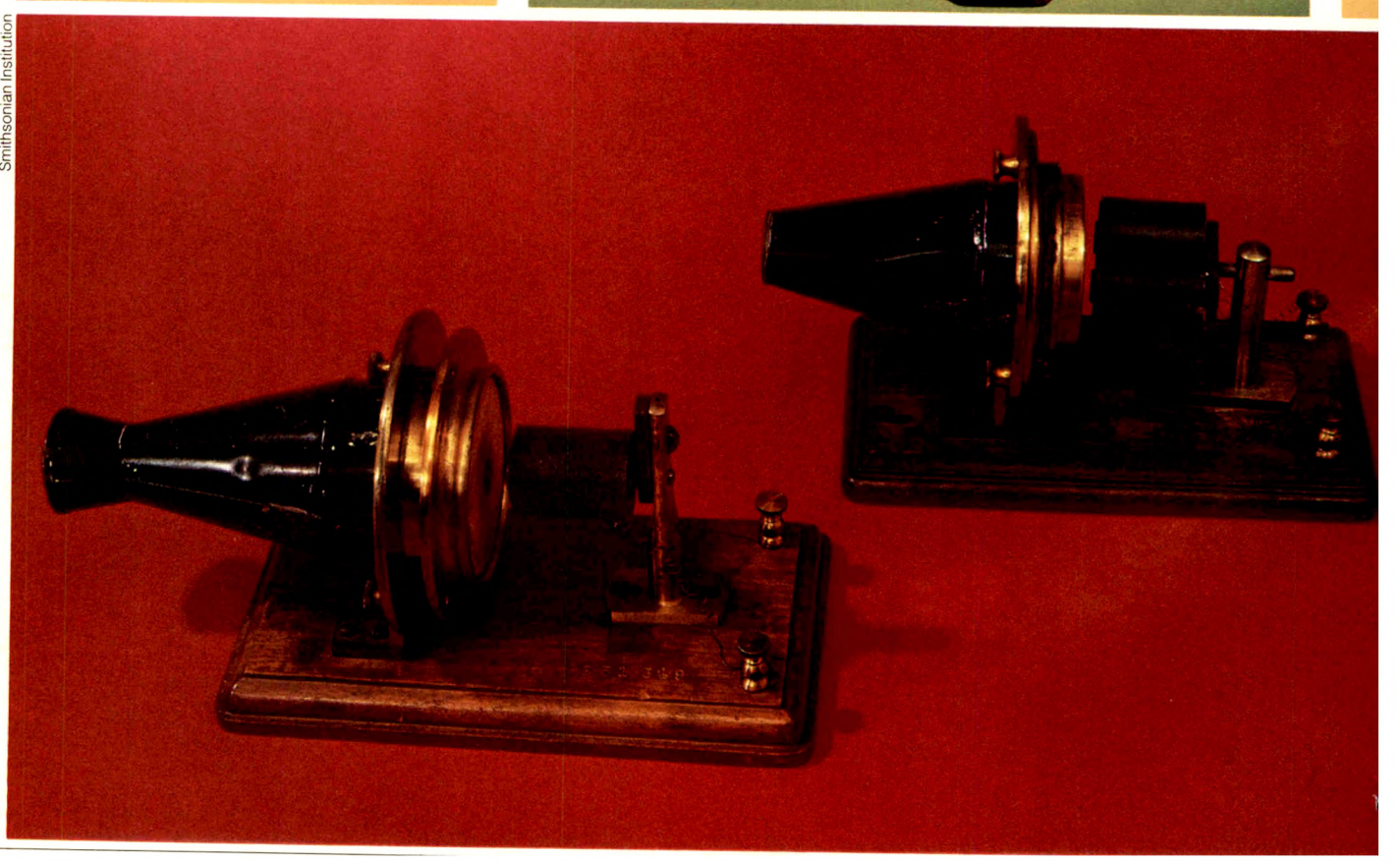


The stylish Ford Model A Roadster, 1931

An early sewing machine by Elias Howe, 1845

Smithsonian Institution

Alexander Graham Bell's telephone, 1875



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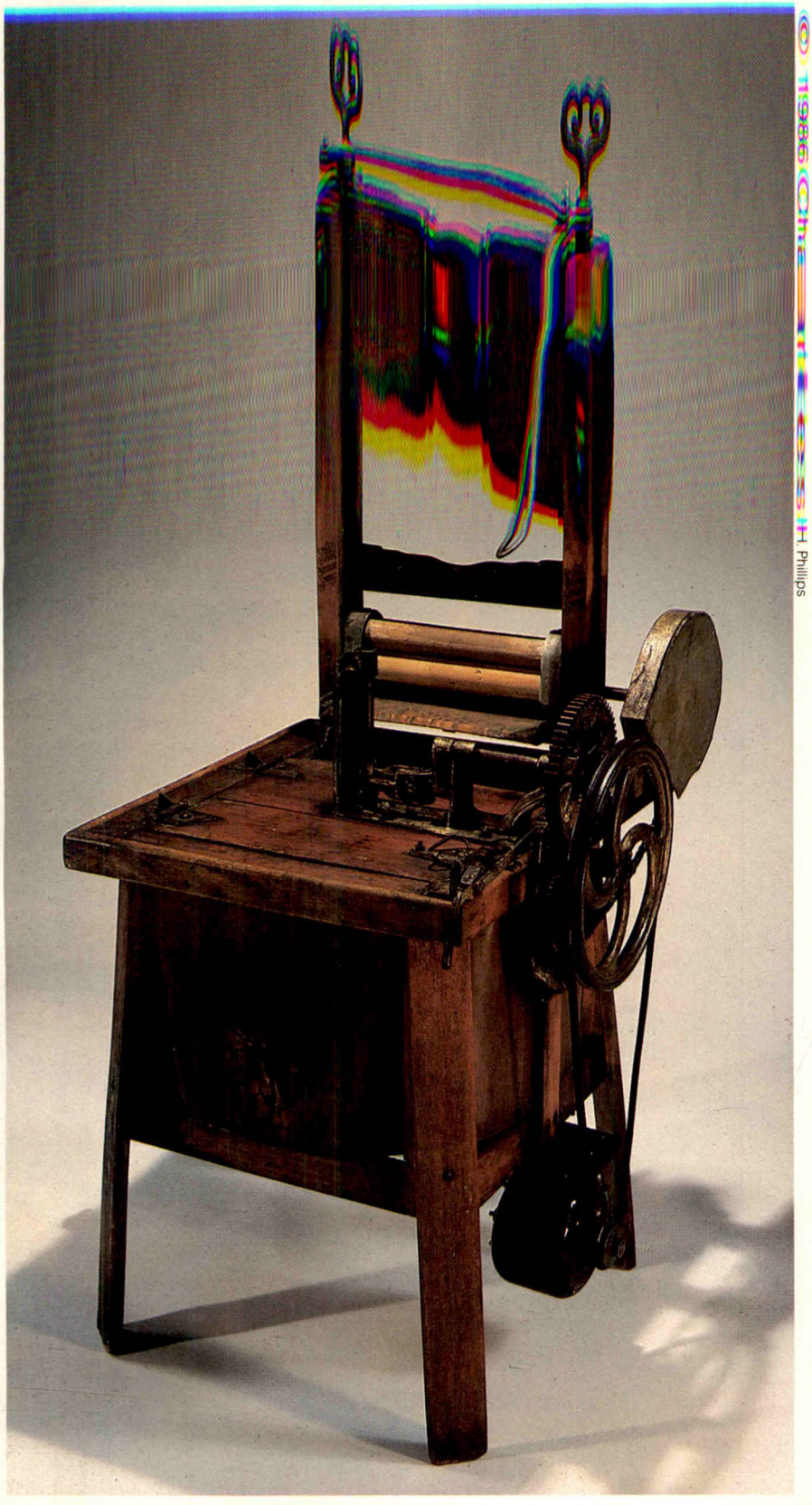
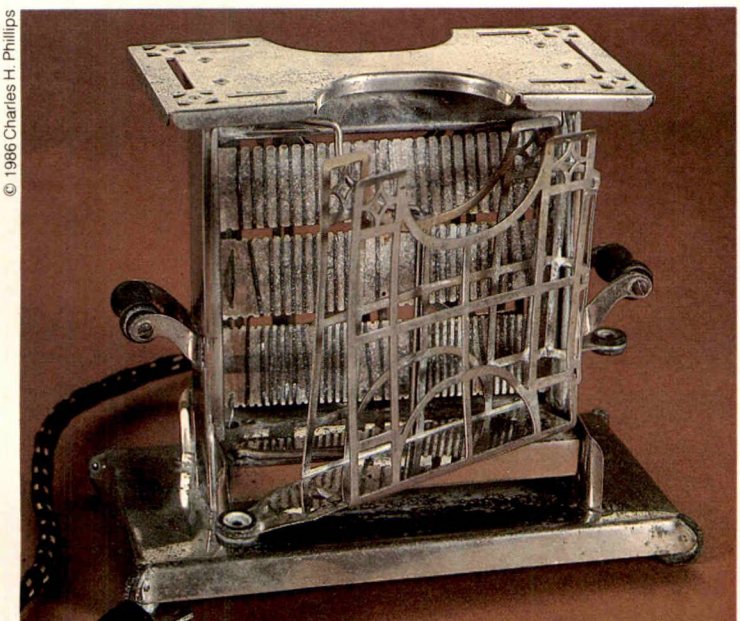
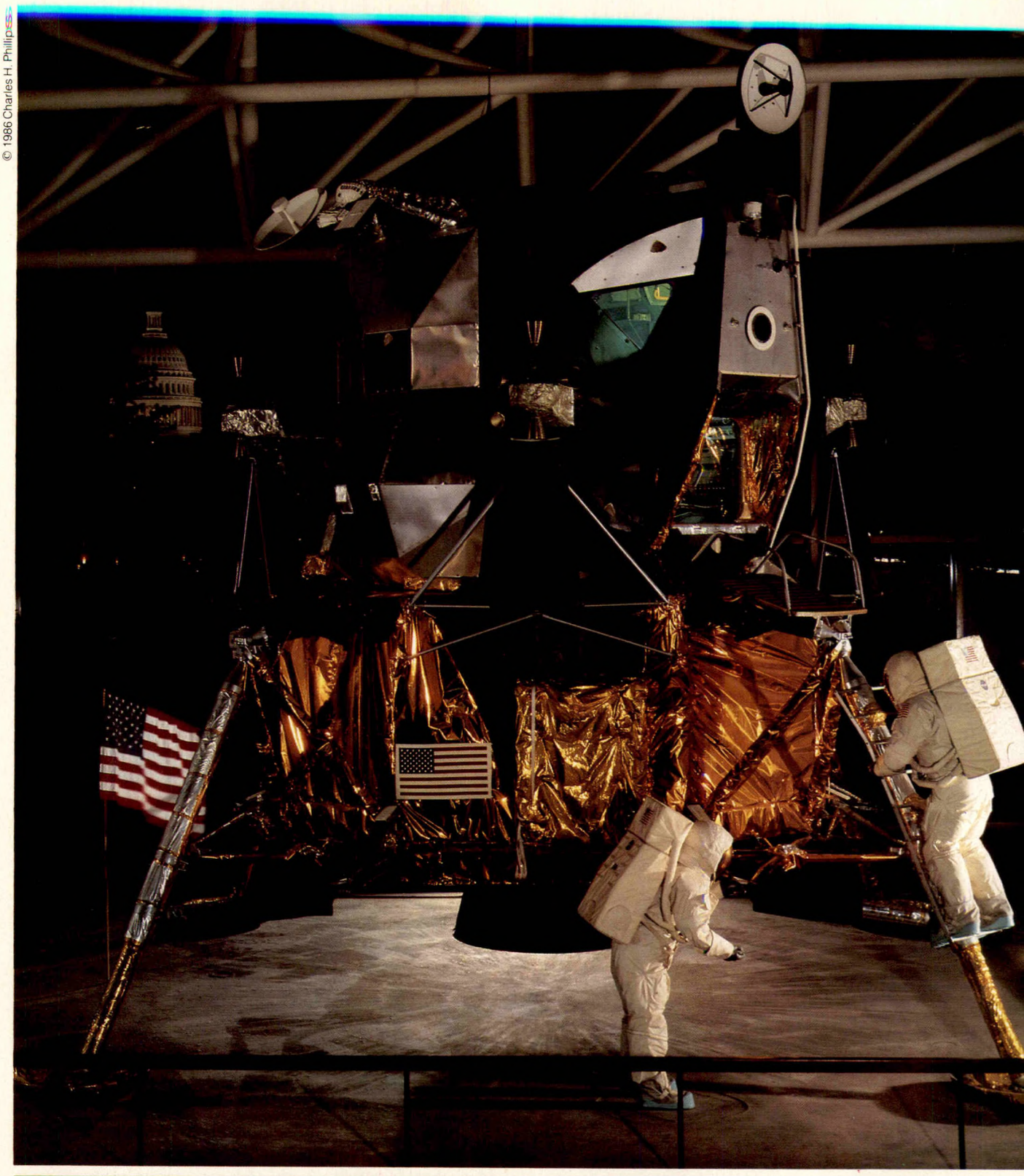


An electric washing machine made by the Vacuum Washer Company, 1912

A Hoover vacuum cleaner, 1908



The Universal electric toaster, 1915



A lunar module identical to the Eagle
that landed on the moon, 1969

—continued from page 8

spected those values. He didn't lose his way and aspire—as Edison did—to be something other than an inventor, even though he may have been tempted by financial reward and fame. From his youth onward, Sperry was always one of the inventive fraternity. But Edison, I think, lost his way, and in later life aspired to be an industrialist. The reasons for this are very complicated, but he embarked on large industrial projects, such as ore separation. These undertakings were very different from his early attempts to solve elegant technical problems, such as those encountered in developing the telegraph.

Sperry was like many inventors—especially inventors of the period from 1880 to 1920, the age I call the era of heroic invention, or the age of the independent inventor. Like them, Sperry yearned for an orderly environment, and much of his effort was given over to ordering the technological world in which he lived. For this reason, there is a certain simple character to Sperry's career. He avoided social complexities and was deeply committed to his family and his home. Fortunately for him, his wife surrounded him with a very tranquil, supportive environment. He needed this tranquility in the domestic sphere in order to—and here I'm using his words—"tame the beast in the technological sphere."

Sperry characterized his machines as "disorderly beasts." Clearly, one of his psychological drives was to bring order out of chaos. He yearned to put on course those things that tend to wander off course. He wanted to bring to the technological world a certain smooth functioning and efficiency. For example, he invented the automatic aeronautical stabilizer and, so, "managed" or stabilized the airplane. He also stabilized ships—ships that were rolling and pitching and making passengers seasick. Sperry was on the straight and narrow, and his inventions kept planes, ships and other machines on the straight and narrow.

A number of inventors I have studied felt during their childhood a certain lack of order, of tranquility. We find this in Leonardo da Vinci, for instance. Much of Leonardo's life was devoted to creating, through invention and discovery, a new environment in which he felt more comfortable than he had in his childhood environment. Inventors who behave in this way are trying to create a safe world, a predictable environment. They are getting rid of reverse salients.

Today we tend to forget independent men like Sperry and Edison because the modern industrial-research scientist has put them in the shadows. In the 1920s and '30s the corporations were successful in persuading the American public that the center of invention had shifted away from the independent inventor. We were told that now everything was centered on the expensively equipped laboratory, where a man in a white coat methodically solved problems, drawing upon abstract reasoning and theory. As a matter of fact, this public-relations effort by industry was so successful that it tended to relegate the solitary inventor to an offstage place in history. Today, some of us historians of technology are trying to take the inventors out of the shadows cast by the towering presence of the industrial-research laboratories. The fact is that independent inventors were the real center of American inventive activity from about 1880 until about 1910, and perhaps even until 1920.

But I'd like to go back to Sperry and Steinmetz. They seem so different. Sperry was creating order. His inventive activity was radical but his behavior was conservative; Steinmetz was radical in his inventiveness but also in his behavior. What happened? What was the difference between these two men, both of them very successful inventors? I think part of the answer may lie in the European background of Steinmetz as compared with the American background of Sperry and Edison. This theory fits in with what I was saying a moment ago: the industrial-laboratory era, of which Steinmetz was a part, tended to enthrone European science, whereas the earlier era of the independent inventor tended to denigrate European science. Edison would have nothing to do with what he called long-haired scientists. Steinmetz, by contrast, was an extreme example of the European intellectual in invention. He was more acceptable to the research scientists than was Sperry, who was closer to fundamental grass-roots American values. This brings us to something that hasn't been explored very thoroughly—the changing character of the inventor. We are in fact contemplating a shift of scene that took place from an American stage, on which Sperry or Edison acted out the drama, to a more sophisticated Europe-influenced setting, dominated by laboratory scientists and inventors such as Steinmetz.

Many inventors have claimed that simple experiments, just tinkering around in the woodshed, can yield results that far outstrip scientific theory. Is that so?

The front-edge inventors are indeed beyond scientific theory. Invention wouldn't be much fun, in fact, if it were nothing more than applied science. The field just wouldn't attract the highly creative people it does. The best thinkers want to be out there where the rules and guidelines are not yet laid down.

There is a certain mystery to invention—not as much mystery as many popular books suggest, but there is lots of risk taking and exploring of the unknown. You probe, and you depend on wisdom, on adventure. You can't depend upon packed-down knowledge, to use a favorite phrase of the late Yale historian Derek de Solla Price. You must resort to a highly imaginative analogy. Let's say we find ourselves in a social situation with which we are familiar. It's a situation in which we can count on the prevalence of certain rules and certain stylized behavior. There are no surprises. But

adventure means going into a social situation that one has never known before. Then you must probe, and make mistakes, and rely on analogies with other, familiar situations. That's what great inventors do.

Sperry once said that he always looked for engineers who "could use their hands." Are engineers nowadays "hands-on" people, or has the profession become too abstract and mathematical to need rolled-up sleeves?

Before World War II, engineers tended to be visual, tended to be hands-on rather than head-on. That's one reason, when one writes a history of technology, that it is very important to illustrate it. Because you are dealing with people whose most impressive works are physical artifacts. I have not generally found writing done by engineers to be very stimulating. But I've found their physical creations elegant, esthetically satisfying, fascinating. If you want to really know engineers and properly appreciate them, stay with the visual, not the verbal—stay with the hands-on. I've taught in a lot of engineering schools, and I try to make allowance for the fact that the brightest students may be verbally inarticulate. We are very unfair when we insist that such students display their qualities verbally. What to do about it? I'm not sure it's generally advisable, but when I taught the history of engineering to engineers, they had to write papers, yes. But I also gave them the opportunity to build models, so long as the project was a disciplined exercise. They had to build a telegraph apparatus, say, exactly as Edison had built it, solve the problems he solved. And the difference that made in the quality of their work was dramatic.

In your studies of great inventors, have you run across any secret qualities—qualities that, if they were encouraged in your own children, might produce a new generation of Edisons or Sperrys?

Yes, one such quality is a person's willingness to be considered an outsider and to consider one's outsider status a distinction, despite all the pain that comes with it. People who have this quality derive great satisfaction from knowing that the way they repair autos is quite as impressive as the way someone else manipulates words. They know they are manipulating reality with gears as you are manipulating it with words. But they must live with the fact that society generally discounts the hands-on and the visual.

Thank God there is art: the historians of art see to it that the visual is appreciated in their realm. And some engineers and historians of technology have been very cleverly—I use the word advisedly—trying to associate the word *engineering* with art. This emphasis on "arts" can be misunderstood as a certain pretension on the part of some engineers. But other engineers and other historians of technology sincerely believe that there is an esthetic quality to engineering work that is comparable to the esthetic quality of the artist.

The word *systems* often comes up in your writings. How is the concept of systems relevant to your view of technology?

I'm certainly influenced by the concept of systems, probably more so than most historians. But my interest in systems stems largely from the fact that I studied engineering as an undergraduate. The course I enjoyed most was electrical engineering. One of the models or images that burned itself into my mind is that of an electrical-circuit system, with its interconnected resistances, energy sources, capacitors and conductors. In an electrical system there is no cause-effect sequence. There is simultaneity. One doesn't think of the resistance causing the behavior of the capacitor or the capacitor causing the behavior of the inductance, in a linear this-causes-this, this-causes-this sequence. What goes on in an electrical system involves simultaneous interaction. Many historians have mechanical models in mind. They think of one gear turning another gear turning another gear, sequentially. But my model of reality—of technical reality, at least—is grounded in simultaneous interactions that have no linear cause-effect relationship. In short, I tend to think in terms of systems.

The engineers, inventors and managers of technology whom I have studied also have tended to think systematically. They don't think of a machine as a collection of linear processes. They think of it, instead, as an organic whole made up of interacting parts.

Should the history of technology be taught as a separate subject, or should it be made an integral part of the general history courses taught in schools? And is there a readable general history that does integrate technology?

To arrive at an answer, let's consider the various stages through which writing on the history of technology has moved. In the discipline's early days, in the 1930s, such American historians of technology as Lewis Mumford or Roger Burlingame were reaching a general public with their histories. But these two men were not academics. They did not have established positions in the academic community. So their base was a limited one. Nonetheless they survived, because they were remarkably talented writers and highly intelligent people. However, no discipline can depend on such gifted pioneers, but must develop professional academics. So over the past three or four decades the discipline has tended to stress academic standards and credentials. Today, I

think, there is an inclination and a desire to reach out, because the discipline's base has been established. Now that historians of technology feel more secure about their scholarly credentials, they want to communicate with the general public. They want their ideas to have an influence outside the academic world. The history of technology will in the not too distant future be integrated into general history more than it has been.

Take, for example, studies on the establishment of the United States—that is, on the integrating of the various regions into a national community. Certainly a part of that narrative will be the story of the telegraph, the railroad and the large technology-based institutions that created a nationwide market. We also will have more detailed and persuasive histories of the way technology played a role in the two world wars. And we will try to understand the relationship between technology and economic depression. In other words, we will take some of the major themes in American history—depression, war, nation-building, democracy-creating and social change—and try to show what the technological factor has been. One historian who has done that with considerable success is Daniel Boorstin.

It strikes me that one of technology's weak points is the fact that the public is perfectly willing to reap the benefits of technology but has very little notion of what technology is all about. We just stand there and wait for the cornucopia to produce. Is there some way of getting around this problem?

One reason I believe the history of technology should be taught early on in schools is that technology is something we have created. I'm not so interested, as some are, in teaching about the way technology influences *us*. Such an outlook is too passive. Instead, I prefer to think of technology as something *we* have done. Which is to say that we express both our virtues and our sins in our technology: *we get the technology we deserve*.

But there is another complication. I'm drawn to C. Vann Woodward's concept of the burden of history: he speaks especially of the "burden of southern history." My application of Woodward's concept is that we also labor under the burden of technological history. That is, much of the technology we deal with is out of the past—maybe only 10 years, maybe only five years, maybe only one year ago—but it was created by people who had widely different objectives, so now we have to live with an inappropriate technology, created under different circumstances by people with motives different from ours. I see that as the burden of technological history. Just as you need to understand general history if you want to get out from under it, so you need to know the history of technology if you want to get out from under the technological burden.

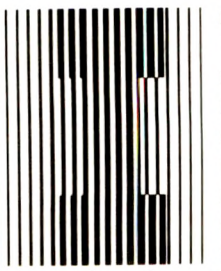
It seems to me sad that engineers, the practitioners of technology, are not more aware of this need. By contrast, the more sophisticated politicians are keenly aware of the burdens of political history: they are aware, for instance, of [Chamberlain's meeting with Hitler in] Munich, or of the Napoleonic Wars. But many engineers and managers of technology act as though technology has no past. Take a very simple case that I mentioned earlier: we drove big automobiles during the energy shortage. These automobiles were made for the cheap-energy 1930s, but we were still driving them in the '40s, '50s and '60s, despite the sharp decline in the availability of petroleum. So I'll say it again: if you don't know your technological history, you are doomed to live under the burden of it. ♦

Financing New Ventures

By John W. Wilson

In recent years creative partnerships between financiers and entrepreneurs have turned the fruits of science and engineering into such profitable new technologies as computers and genetic engineering. "Entrepreneurship has become an accepted, even commonplace activity and a vital fuel of the new innovation-driven U.S. economy," writes journalist John W. Wilson. In the vanguard of this entrepreneurial boom are venture capitalists—the "brokers of risk" who provide the large sums needed to fund the often risky startup of new companies.

Wilson is a senior writer for Business Week. *He is the author of* The New Venturers: Inside the High-Stakes World of Venture Capital, *from which this article is excerpted.*



In 1983 more than 1000 fledgling American companies received significant private financing. These are not small-scale enterprises such as family-owned pizzerias or laundromats or garage shops housing oddball inventors. They are, in many cases, organizations so well-staffed, -equipped and -financed as to rival divisions of the most important companies in America. They are developing products that stretch the limits of what is possible in computers, software, telecommunications, semiconductors, biomedicine, robotics and the other technologies that will be important in the 21st century. These companies are the products of an unusual investment mechanism—the venture-capital process, one of the least understood but most important business developments since World War II.

Venture capital is a uniquely American process. What has emerged in the United States, primarily in only the past two decades, is a community of a few hundred professional investors whose specialty is to combine risk capital with entrepreneurial management and advanced technology to create new products, new companies and new wealth.

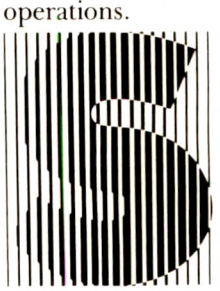
It is easy to take this development for granted. After all, advances in science and technology after World War II have created an abundance of opportunities that can be exploited. Changes in society have brought forward such successful entrepreneurs as Robert Noyce, the founder of the Intel Corporation. But the fact is that similar technological opportunities exist in every advanced country, and entrepreneurship is found in every society. Occasionally those opportunities and talents have spawned new companies, for example, West Germany's Nixdorf Computer or Sord Computer in Japan. But only in America, and only recently, has a vigorous process developed in which highly sophisticated enterprises can be designed and manufactured—on what amounts to an assembly line of capitalism—to address new market needs and to commercialize the ideas that the new technologies are generating.

Venture capitalists play many roles in this process. They are intermediaries between the vast pool of private and institutional wealth that is the fuel for all economic activity and the most hazardous use for investment capital: the formation of new companies. They are brokers of risk, agents of a new style of financial service that is crucial to the U.S. economy's ability to transfer resources from fading industries and technologies to the goods and services that will dominate a restructured world economy in the next century.

Venture capitalists are also *gatekeepers*, to use a term communications researchers sometimes apply to the role of the press. Editors select from a torrent of ideas and events a few that become—by editorial fiat—news. Similarly, venture capitalists choose from hundreds or thousands of proposals in the course of a year only a handful to receive the infusion of capital that will turn them into living enterprises.

Venture capitalists like to say they do not just invest, *they* build *companies; the best practitioners have a long-term view of their role. They think in terms of creating value by developing profitable businesses whose stock eventually can be sold to the public or acquired by larger companies.*

At the less cosmic level of the individual investment, the venture capitalist can serve as the catalyst, organizational architect and strategic designer of the new firm—or simply as a minor figure in the background, writing checks and waiting for a profit. The best venture capitalists are far more than checkbook investors, and the best entrepreneurs have too strong a vision of their enterprise to brook much interference in its planning and operations.



Success in venture capital comes most often from a creative partnership in which the investor's lengthy and often painful experience in forming a company is combined with the entrepreneur's management skills and detailed knowledge of a market or technology. But many venture capitalists have learned the costly lesson that companies are not built or operated from the boardroom. The venture capitalist can counsel and assist, but in the end it is the abilities of the entrepreneur that determine the outcome of the investment.

Venture capital began as a hobby or sideline of the rich, and a few wealthy individuals continue to play the game. So do many smaller investors—often entrepreneurs seeking to recycle their gains from the process—who make up a vast network of informal venture capital. In large measure, though, venture capital today is an institutionalized business. The money comes mostly from pension funds, endowments, trust funds and corporations, and the investing is done largely by highly specialized professionals organized in sizable partnerships as well as by subsidiaries of banks and corporations.

These groups have experienced phenomenal growth in the last few years in the United States. The venture-capital pool—capital under management by professional venture-capital firms—grew from $2.5 thousand million in the 1970s to more than $16 thousand million by the end of 1984, according to Venture Economics Inc., a consulting firm that tracks the venture industry. Private partnerships controlled nearly 70 percent of the money; banks, corporations and government-chartered investment companies accounted for the rest.

The causes of this risk-financing explosion are varied and the subject of debate. Probably the most important factor was the revival of the market for new securities issues which began in the late 1970s and bestowed significant returns on the venture capitalists who had stayed the course through the barren early years of the decade. As company after company offered stock for sale to the public and as offering prices climbed, venture-capital portfolios began to show annual investment returns of 20 percent, 30 percent and, in some cases, considerably more. Venture capitalists finally were able to demonstrate the validity of their approach and compete successfully in the marketplace of investment vehicles.

The venture-capital process begins with the deal that organizes a new company and sets the terms under which the investment is made. Pro-

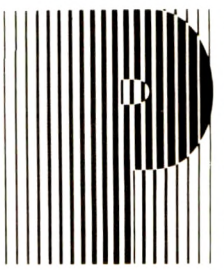
posals come to the venture capitalist in the form of detailed business plans that describe the product or service to be developed, the market to be served, the credentials of the founders and the financing required.

The quality of the references usually determines whether a proposal becomes a deal. Few experienced venture capitalists will back entrepreneurs who do not come recommended by other venturers, lawyers, accountants or trustworthy contacts in industry. By the same token, the quality of a venture firm's deal flow reflects the quality of its contacts and especially its place in the venture-capital pecking order. To spread the risk and the work, deals are often shared or syndicated among several firms; by immutable law of the venture world, those unable to offer good deals never share in the best deals of others.

Deciding which deals to support, and on what terms, is the crux of the venturers' task. Often, their decisions seem heavily influenced by hunches or blind intuition. But what may appear a stab in the dark is usually a shrewd calculation based on long experience with entrepreneurs and the characteristics of successful—and unsuccessful—deals. Some winning venture capitalists claim to look almost exclusively at the backgrounds and personalities of the founders of a new company; others focus mostly on the technology involved and the market opportunity the venture addresses. Both approaches are usually blended in the furious few weeks of research that precede a venture decision.

Venture capitalists being human, there is also an element of fashion that enters into the decision. After Genentech became the first startup company to clone a gene, almost every venture firm scrambled to invest in biotechnology; after Lotus Development struck it rich with a software package early in 1983, personal-computer software startups appeared in every portfolio of investments.

Whether it is cars or airplanes or semiconductors or consumer electronics, there are always uncertainties early on about the technological course to follow. The only way to deal with that uncertainty is through experimentation—a lot of small companies competing with different technologies.



Pricing a venture deal—setting a value for a company that typically has no assets, no products, no sales and decidedly no profits—is an arcane process that can involve as much negotiation as calculation. Valuation is expressed in terms that all entrepreneurs can understand: how much money can they raise, and how much of their venture do they have to give up to get it? Pricing is often the first point of disagreement between investors and entrepreneurs. In the absence of hard facts about the company-to-be, venture capitalists base their pricing decisions on assumptions about its future earning power and the value that public markets or potential merger partners will assign it. A more important factor, often, is the state of the market for venture deals.

Venture capitalists like to say they do not just *invest*, they *build* companies; the best practitioners have a long-term view of their role. They think not in terms of preserving their capital or of maximizing short-term returns but of creating value by developing profitable businesses whose stock eventually can be sold to the public or acquired by larger companies. They are equity investors; there is no mechanism for returning their investment except growth in the underlying value of the company. If something goes wrong, the venturers cannot cover their mistake by selling the investment to others or by hoping for a miracle. They must act. They demand new strategies, they install new management, they even take the helm themselves in extreme situations. They are in for the long pull, and the pull is often strenuous.

At some point, the venture capitalist must make an exit. Long-term investor or not, the venturer will stay in business only with the prospect of returns that are substantially better than those available in more conventional investment vehicles. In as many as 15 percent of the deals, the exit decision will be made perforce in bankruptcy court or at a distress auction of the company's assets. In as few as 10 percent of the deals, the company's success will be so obvious that the decision to sell stock to the public is only a matter of timing and method. For the other 75 percent of the investments the decision can be painful.

Whether or not they are successful, growing companies need capital. Should the new company find a merger partner? Sell to an industrial giant? Go public at a low valuation? During the mid-1970s, when few new firms went public, merger or sale was often the only exit available even for enormously successful ventures. During the early 1980s even the marginal cases found a warm welcome in the public markets. By 1984 acquisition of venture-backed companies by established companies was back in vogue.

The profit from venture-capital investing varies widely. The biggest winners have seen returns at the rate of more than $150 for each dollar invested. It is the occasional superwinner, together with the more common 10-to-1 or 20-to-1 return, that allows a venture capitalist to tolerate the inevitable losers in a portfolio and turn heart-stopping risk into prudent investing.

These returns also have influenced the American economy at large, stimulating a significant flow of equity

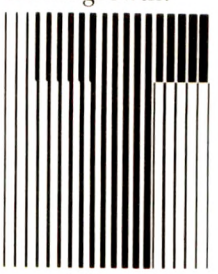
capital into the industries and technologies that are most important to productivity and international competitiveness. A review by the U.S. Office of Technology Assessment showed this breakdown of venture investments in the early 1980s:

- computer-related, 30 to 40 percent;
- communications, 10 percent;
- other electronics, 12 to 14 percent;
- medical-related, 7 to 8 percent;
- genetic engineering, 4 percent;
- industrial automation, 3 to 4 percent.

Other investments went into energy, consumer products and services and a variety of industrial innovations. Venture capital acts as an accelerator in these crucial industries, enabling spinoff and startup companies to surpass established companies in price, performance or invention and force them to respond. It also encourages multiple attacks on crucial technical problems, an essential part of the development of new classes of products and the commercialization of new technology.

The extravagant rewards American society has showered on venture investors can be explained in part by the unique role they play, along with entrepreneurs, in creating wealth—in conjuring something from nothing. As William Wetzel, professor of business at the University of New Hampshire, explains, venture capital should be thought of as "creative" capital that performs a quite different economic function than other investment vehicles, which primarily serve as "expansion" capital. Investments that help existing firms expand are tightly linked to the value of the company's underlying assets and are rewarded primarily out of the income produced by those assets. Risk capital, Wetzel argues, creates new wealth: "It is the cutting edge that, together with entrepreneurs, exploits opportunities to put together apparently neutral or sterile resources to create firms with capitalized earning power, or market value, well in excess of the cost of invested funds." Looked at in this way, the venture capitalist becomes a specialized form of entrepreneur, sharing the risks and also the rewards of entrepreneurship with the founders and managers of the firm.

Although no one doubts the importance of entrepreneurs, efforts to describe them and their role have not produced a definitive portrait. Social scientists have been attempting to describe entrepreneurs in terms of sociology and psychology at least since the 1930s when a theory of the "Protestant ethic," proposed by German sociologist Max Weber, began to gain currency as an explanation for economic growth.



Thirty years later psychologist David McClelland of Harvard University shifted the argument from religion to child psychology. By examining the literature, especially children's stories, of several societies, McClelland detected a strong correlation between economic development and early training that stressed personal achievement. It was the achievement-oriented children, given the right conditions, who became the entrepreneurs in Italy during the Renaissance and in 19th-century America, McClelland suggested.

Trying to analyze the entrepreneur, comments business historian Harold Livesay, is no easier than analyzing the paintings of Monet or Andy Warhol. "Successful entrepreneurship," he remarks, "is an art form as much as or perhaps more than it is an economic activity."

What is important is that it has emerged again. Economists generally dislike theories that emphasize the role of individuals instead of the conditions that enable them to act, but the resurgence of new-venture activities since the bleak 1970s has stimulated renewed interest in entrepreneurship as a cause or at least a conduit for economic growth.

Joseph Schumpeter, the Austrian-born Harvard economist, more than 50 years ago made the case for the entrepreneur's seminal role in the economy. Where classical economics studied the workings of a closed system, Schumpeter saw that the essential thing to understand about capitalism is that it is an evolutionary process with old industries continually being replaced by new ones in a series of upheavals he called "creative destruction." It is the entrepreneur, in Schumpeter's view, who plays the pivotal role in this process and is responsible for recurring booms and recessions that he argued were due to the upsetting impact of innovations. Schumpeter went on to describe the entrepreneurial function in terms that sound like a job description for a venture capitalist: "This function does not essentially consist in either inventing anything or otherwise creating the conditions which the enterprise exploits. It consists in getting things done."

Few eras in history can equal our own for the magnitude of social, economic and technical change that is rippling through society. Entire industries have been transformed or swept away and new ones erected in their place as one economy, based essentially on 19th-century technology and on limitless supplies of cheap energy, is replaced by another with its roots in 20th-century computer science, solid-state physics and molecular biology. The transition to a postindustrial or information-based society is accelerating. And true to Schumpeter's model, the driving force behind this change has been the entrepreneur—aided and abetted by the venture capitalist.

Entrepreneurship does not operate in a vacuum. There is a good deal of debate about the exact role and importance of entrepreneurs, but it seems clear that there must be preconditions for their emergence. At a minimum, there should be market incentives to reward their activities and a system for mobilizing the capital they need, as well as an infrastructure of technology, labor and materials with which to work.

American sociologist Paul Wilken examined the development of Britain, France, Germany, Russia, Japan and the United States, and concluded that in most cases infrastructure—transportation, energy and raw materials, the cost and quality of labor—played a more important role than entrepreneurship in the process by which these societies industrialized. Even conceding that the entrepreneur's role is primarily that of an intermediary for larger forces in society, it is difficult to imagine economic growth and development occurring without this participation. Someone, after all, must discover and act on the opportunities that allow new industries to flourish.

o one could miss the supreme importance of the entrepreneur in the American industrial transformation that has been under way for the last several years. Economist Calvin A. Kent of Baylor University could be exaggerating when he writes that the new entrepreneurial revolution "may have as great an impact on the lives of people in the 21st century as the Industrial Revolution had on the lives of those in the 19th." But entrepreneurs—and especially the high-technology pioneers of northern California's Silicon Valley and the Route 128 corridor around Boston—have already become new American folk heroes, honored as providers of jobs, bulwarks against foreign competition, innovators on the frontiers of science and role models for college students and corporate executives. William Miller of the research firm SRI International cites changes in values, the emergence of new technologies and the revival of entrepreneurship as factors that could usher in a new "golden economic era."

Twentieth-century Russian economist Nikolai Kondratieff theorized that the most important business cycles were those caused by the rise and eventual decline of industries due to basic changes in technologies and markets. The first Industrial Revolution, which began in the 1780s and ended in the 1840s, is the best-known example of a Kondratieff "long wave."

A process of "creative destruction" in which one technological era is replaced with a new one has been under way in the U.S. economy for the past decade as capital and talent have flowed from heavy industry to high technology and services. Venture capital has fueled this revolution.

American business scholar Peter F. Drucker sees the burst of entrepreneurship as evidence that the United States has entered a new Kondratieff expansion which is likely to be "a period of great opportunity, of fast-growing employment in certain areas and of rapid overall growth."

A number of studies have shown that new companies are the major source of new jobs in the United States. One of these, conducted by David Birch and Susan MacCracken of MIT's urban studies program, showed that enterprises four years old or younger created more than 60 percent of all new jobs from 1977 to 1981. However, the role of entrepreneurship is not nearly so exaggerated in the high-technology sector, which under the most narrow definition put forth by the U.S. Bureau of Labor Statistics includes the drug, computer, communication-equipment, electronic-components and aerospace industries—encompassing most companies backed by venture capital. Birch and MacCracken found average growth rates of new high-tech companies were far higher than the average for other new companies (80 percent versus 17 percent) but 70 percent of the new jobs came from companies in business 12 years or more. Their conclusion: "The greater the degree of innovation in a sector, the greater the tendency for rapidly growing smaller companies to keep right on growing as they become larger."

One way to look at the entrepreneurial companies in such emerging industries as electronics, information processing and biotechnology is as engines of new-product experimentation and development. Michael L. Tushman of Columbia University Business School has studied the dynamics of entrepreneurial companies and concludes that a basic benefit of the small firm is its ability to experiment with a new product or a new class of products in a way that dominant companies cannot do. "Whether it is in cars or airplanes or semiconductors or consumer electronics," Tushman points out, "there are always uncertainties early on about the technological course to follow. The only way you can really deal with that uncertainty is through experimentation, and so you see a lot of small companies competing with different technologies."

Taken as a whole, the proliferation of new companies when a product class is emerging may look inefficient—a waste of talent and resources—since very few will find a combination of technologies and market strategy to successfully compete against established companies. Fewer still will survive the organizational transitions they must make to thrive as large companies. Out of 100 companies experimenting with a new product, Tushman estimates, perhaps 50 will choose a product consumers seem to want and as few as 10 can be expected to manage the first transition to operating as a professionally run company. "But you've got to have that experimenting," he argues. "You can't legislate these fundamental technological shifts because the chances of your being right are small." The crucial role of venture capital, as Tushman sees it, is to fund the host of "experiments" it takes to make this product transition.

This amounts to an updated version of the classic role of the entrepreneur as enunciated by Joseph Schumpeter. A process of "creative destruction" in which one technological era is replaced with a new one has clearly been under way in the U.S. economy for at least the past decade as capital and talent have flowed from heavy industry to high technology and services. Venture capital has fueled this revolution. ♦

LANDSCAPE FOR SCULPTURE

Photographs by David Finn

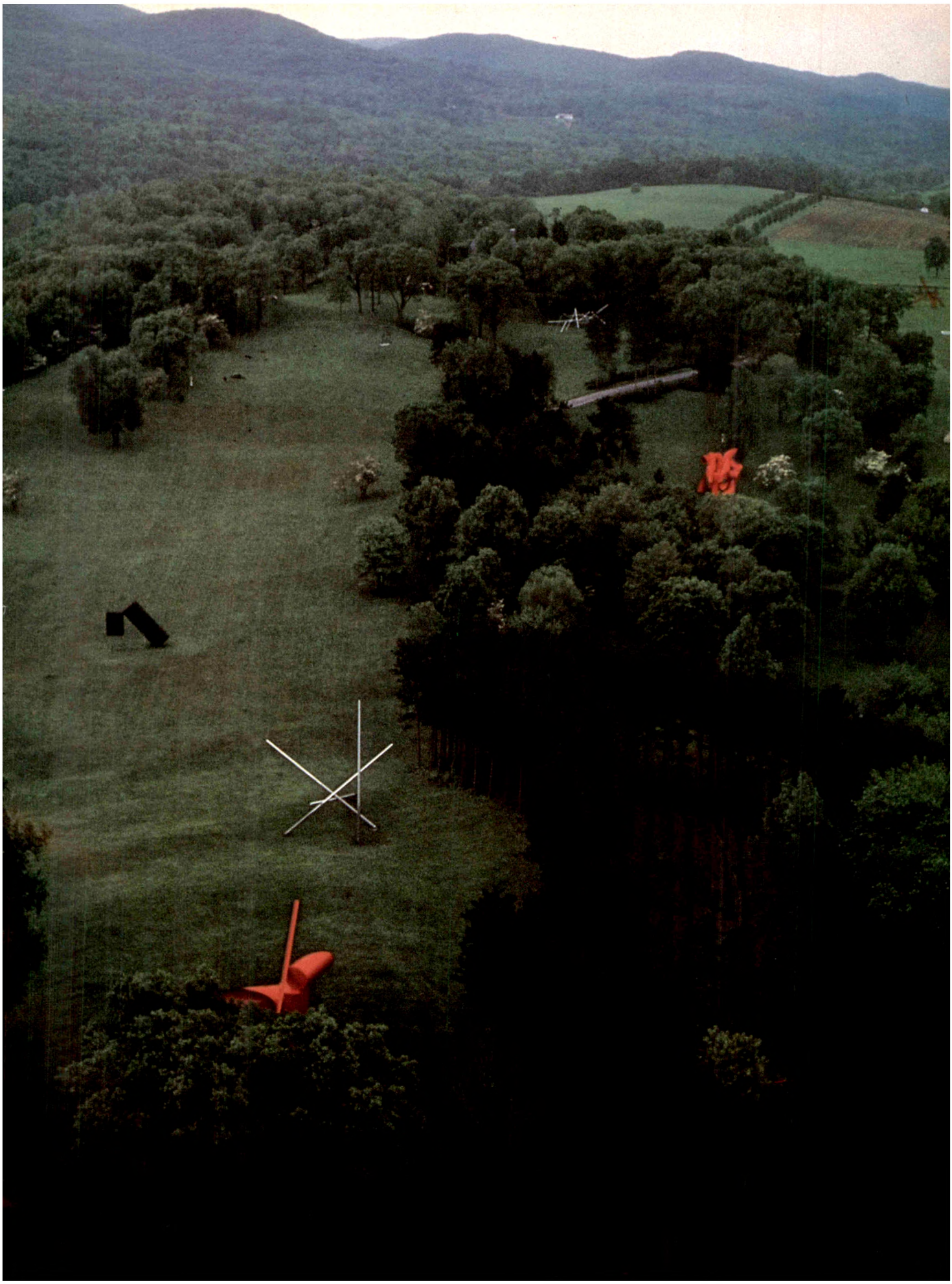
REVIEWING an exhibition of modern sculpture, *Wall Street Journal* art critic Jack Flam writes, "Time and again the pieces...seem to want either a smaller, more well-defined space around them, or a vast amorphous one." Finding an appropriate setting, in fact, is a major problem for contemporary sculptors who work on a monumental scale. The grand works that grace some public plazas are often dwarfed by surrounding skyscrapers, yet these pieces do not easily fit into most museum spaces either. As the panoramic picture on the facing page (taken from a helicopter by art photographer David Finn) makes clear, however, the Storm King Art Center in rural New York State offers a setting that does justice to the art.

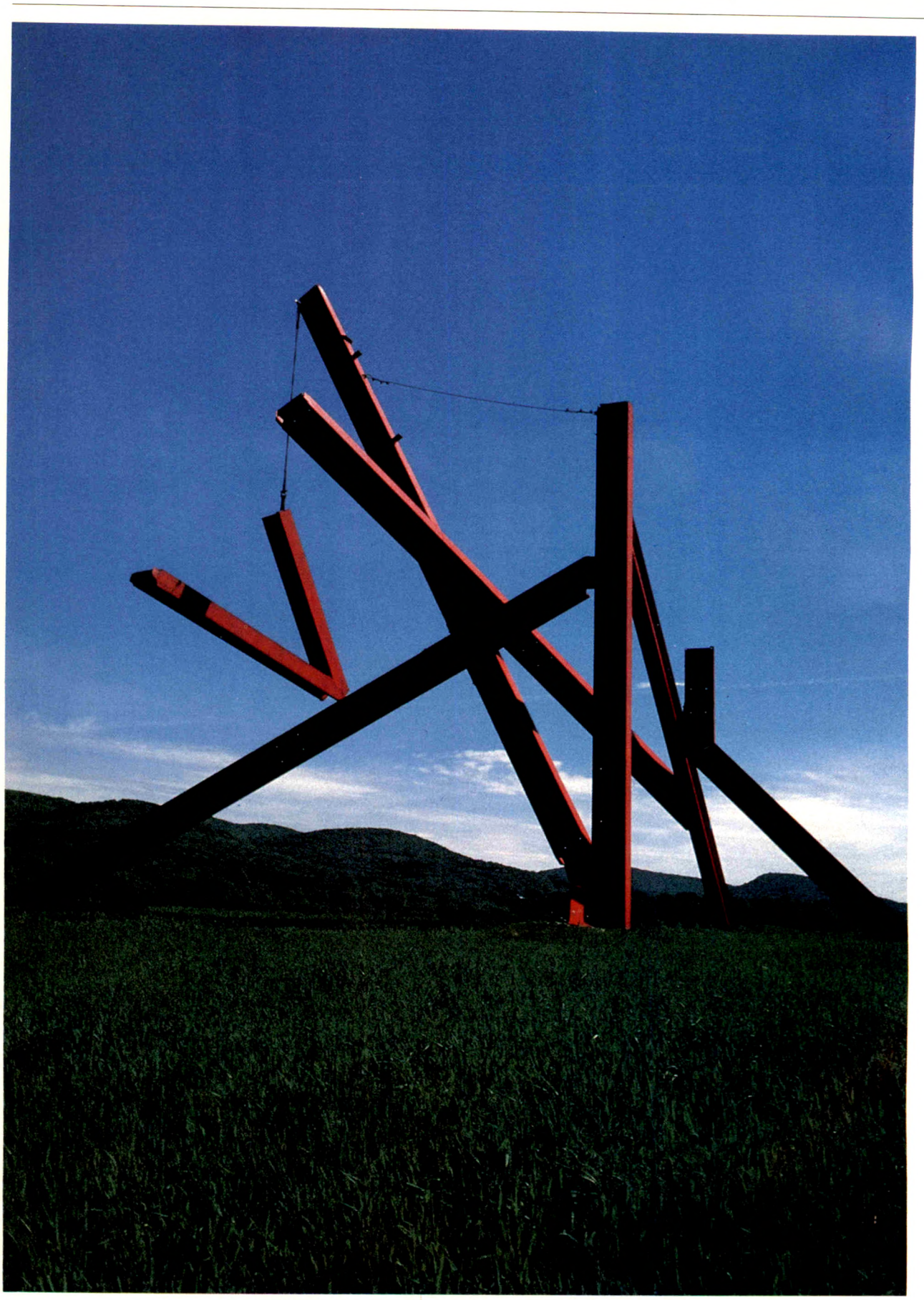
Since its founding in 1960, Storm King has grown into a major collection of works by the most notable post-World War II sculptors, including Alexander Calder, Isamu Noguchi, Louise Nevelson, Henry Moore and David Smith. With 125 sculptures spread among its 140 hectares, Storm King provides a liberating landscape where the giant art works stand before sky, trees and mountains—an approach that one photographer compares to leaving an animal in the wild instead of putting it in a zoo.

Though Storm King's valley setting looks natural, landscape architect William Rutherford drained swamps, filled gravel pits and leveled a cliff to create meadows and forests. He worked with many of the 47 artists in the permanent collection to form hills and plant trees, thus affording the most dramatic site for each piece. Smaller sculptures usually inhabit secluded glades, while large works—including one 60 meters long and another 20 meters high—have been given wide-open spaces. Despite their size, many of the center's monumental sculptures engage the viewer's sensibility in intimate ways. For instance, visitors are welcome to climb inside Noguchi's granite piece "Momo Taro," shown on pages 30 and 31.

Art critic John Beardsley calls Storm King the successor to such traditional European parks as those at Versailles and the Tuileries. He also finds that one of the deeper satisfactions of Storm King is the way it conjoins "two of the most potent myths of the American imagination: the machine and the natural paradise."

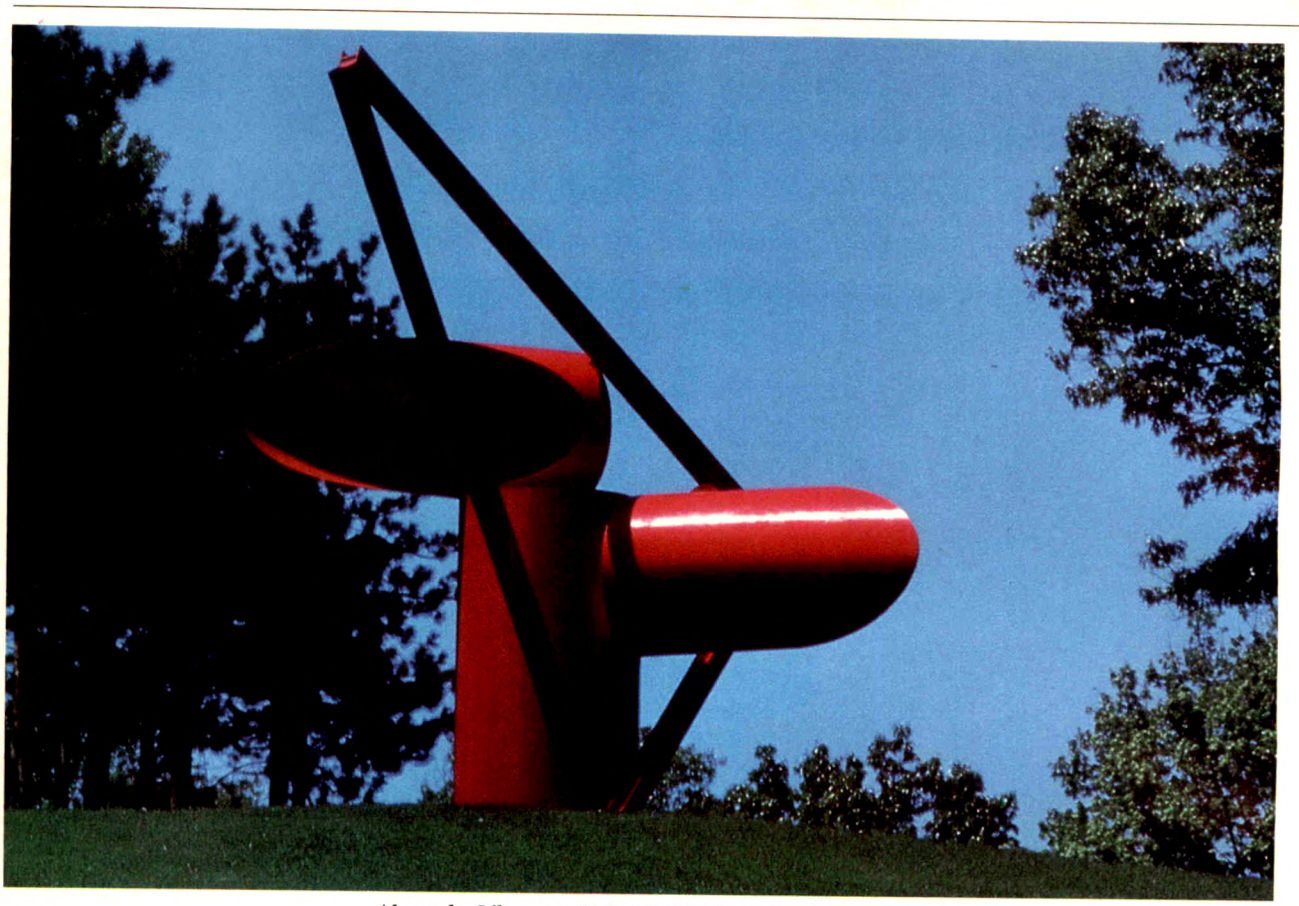
David Finn is a noted photographer of sculpture whose work has appeared in books on Canova and Cellini and in an earlier volume, *Sculpture at Storm King*. These pictures of the center by Finn are from *A Landscape for Modern Sculpture*, published recently by Abbeville Press.



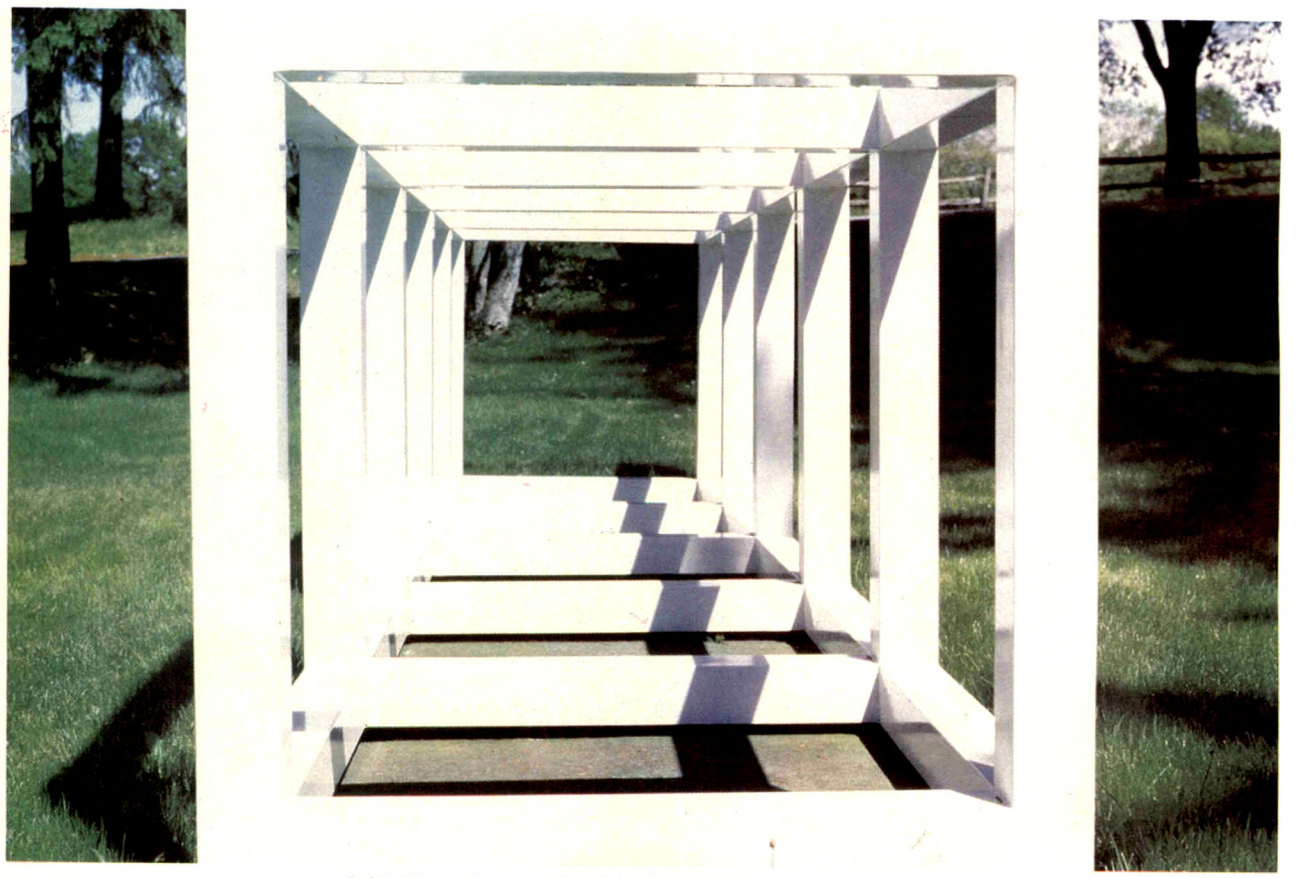


Mark di Suvero, "Are Years What? (For Marianne Moore)," 1967 *Painted steel, 12 x 12 x 9 m*

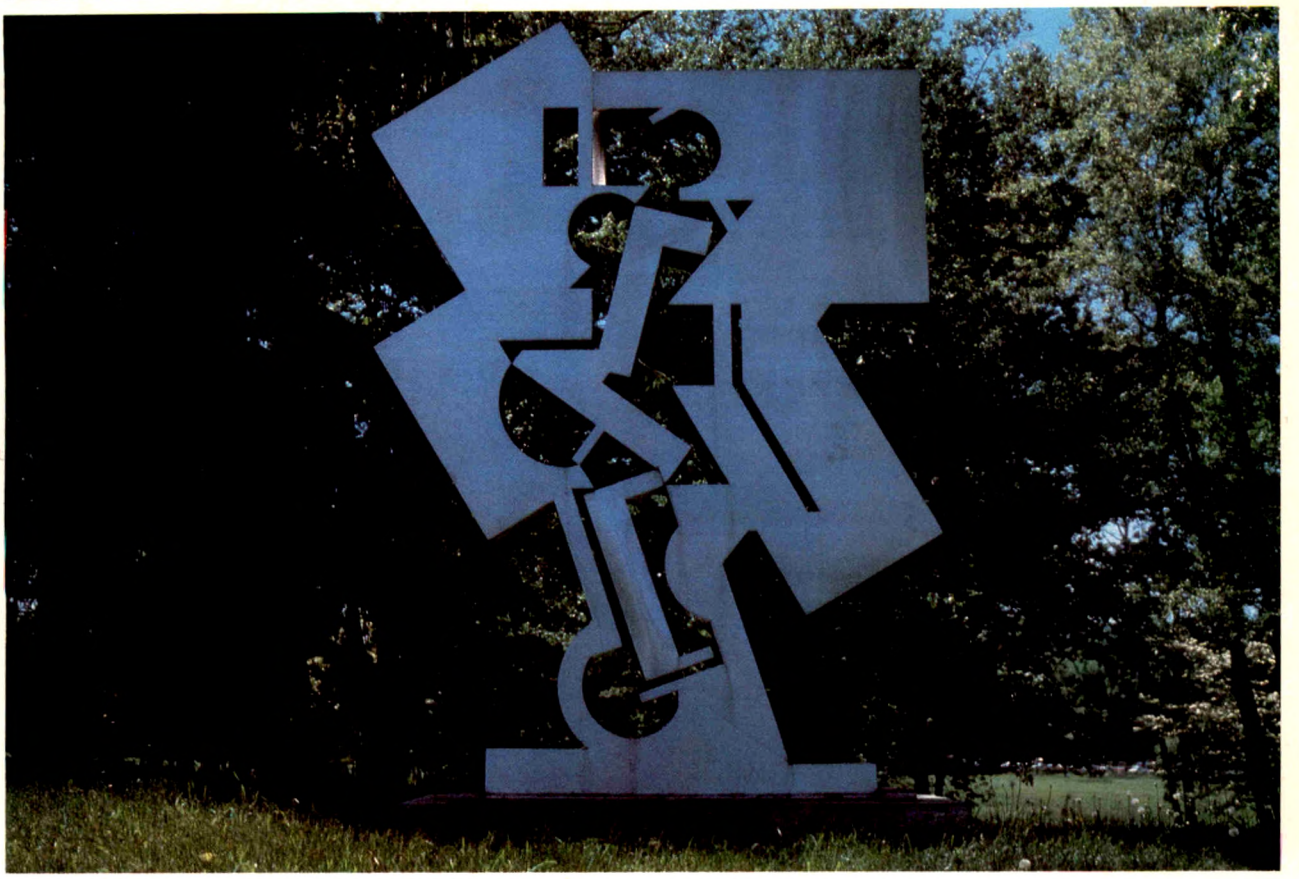
Louise Nevelson, "City on the High Mountain," 1983 *Painted cor-ten steel, 6 x 7 x 4 m*



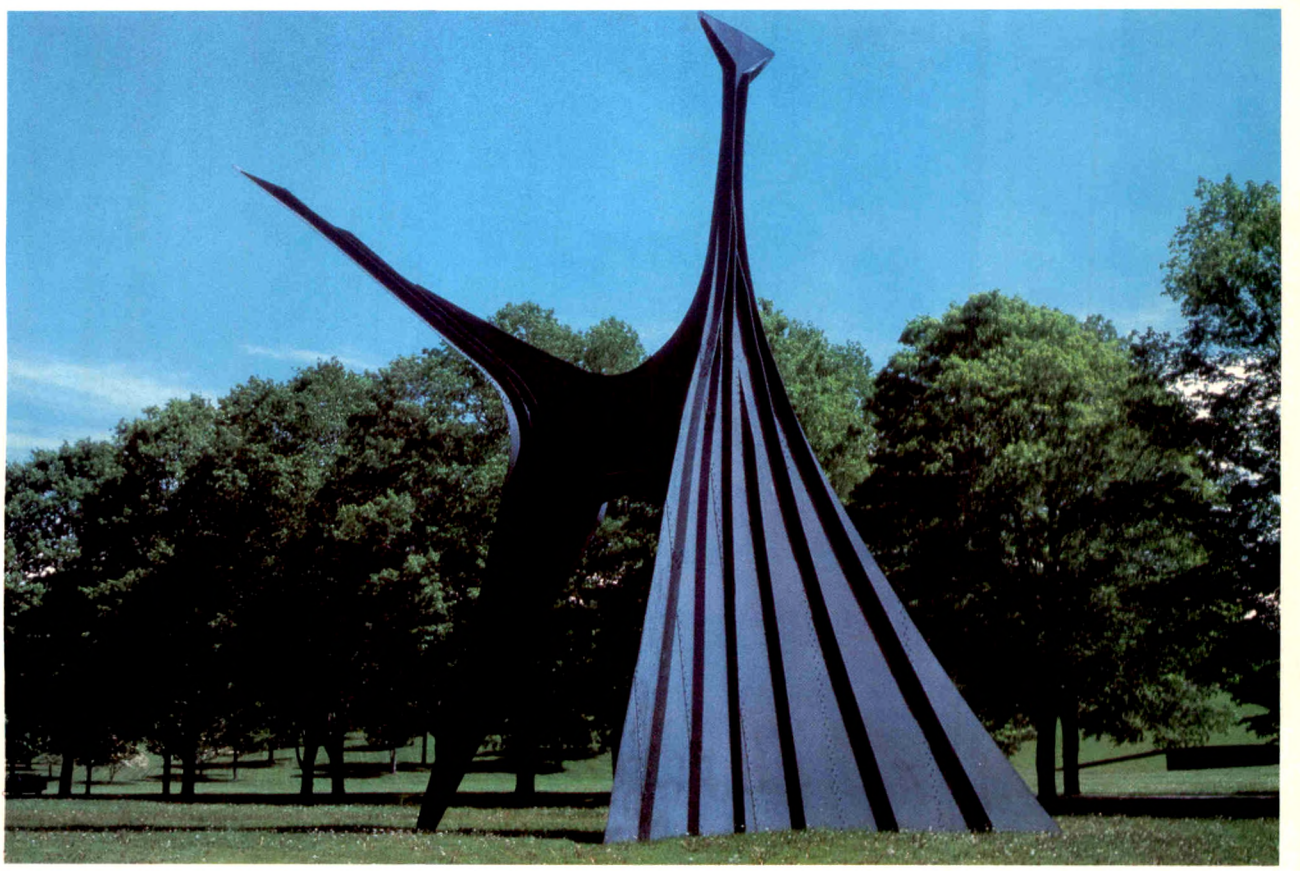
Alexander Liberman, "Adam," 1970 *Painted steel, 9 x 9 x 7 m*



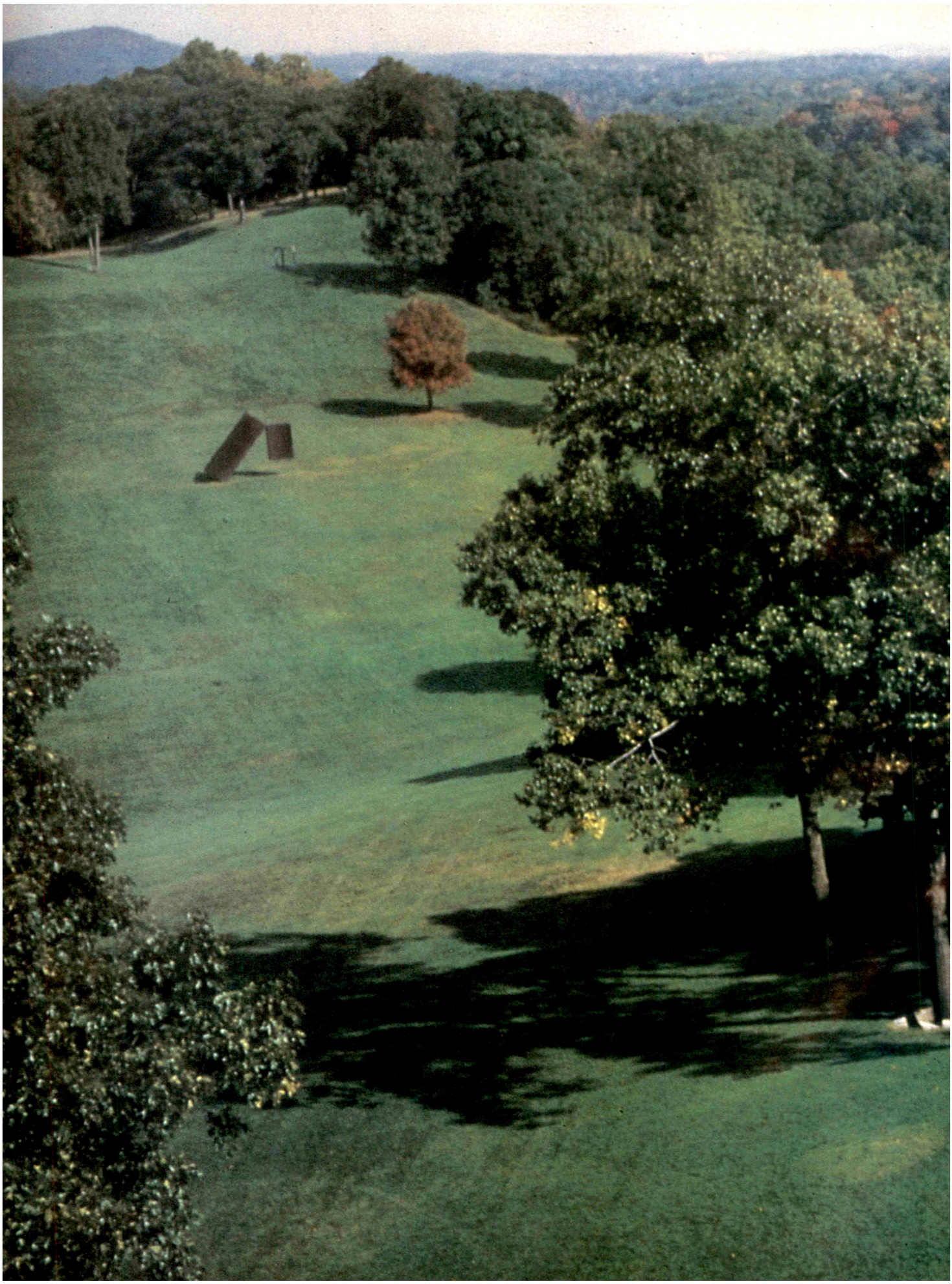
Sol LeWitt, "Five Modular Units," 1970 *Painted steel, 1.5 x 1.5 x 7 m*



Ernest Trova, "Gox No. 4," 1975 *Stainless steel, 3 x 2 x 3 m*



Alexander Calder, "The Arch," 1975 *Painted steel, 17 x 13 x 11 m*



Isamu Noguchi, "Momo Taro," 1977 *Granite, 3 x 11 x 7 m*

THE WORLD of COUNT BASIE

Photograph by Phil Stern

By E.J. Hobsbawm
From The New York Review of Books

Count Basie, who died in 1984, led one of the foremost big bands during the music's golden age in the 1930s and '40s. "There has never been such a concentration of jazz talent in a single group," jazz historian James Lincoln Collier has written of the musicians Basie brought together. Formed in 1935, the Basie ensemble played with a distinctive driving rhythm that E.J. Hobsbawm calls "the purest expression of big-band swing." In this retrospective essay Hobsbawm analyzes the band's greatness and traces the roots of Basie's music to the populist blues style he learned playing piano in Kansas City.

Hobsbawm, a professor emeritus of economic and social history at the University of London, currently teaches at the New School for Social Research in New York. His many books include The Age of Capital, The Age of Revolution *and, most recently,* Workers.

Sometime in the 1950s American popular music committed parricide. Rock and roll murdered jazz. Count Basie describes a moment of the murder in his autobiography, *Good Morning Blues*. There was:

> a heck of a thing going on at a theater down on Fourteenth Street somewhere, and we used to get down there at around eleven o'clock and you couldn't get near the place for the crowd....I remember this and I also remember how things went. The first acts would go on, and the kids would all be jammed in there having a ball and applauding and whistling. Then when it came time for us to go on, just about all of them would get up and go outside and get their popcorn and ice cream and everything, and we played our act to an almost empty house. Then when we finished our set they would all come back in. No kidding.
>
> So we would just go downstairs and play poker till it was time to go on again. That's the way it actually went. Those kids didn't care anything about jazz. Some of them would stay and come down front and stand and listen and try to hear it as long as they could, and we would try fast and slow, and it made no difference. That was not what they came to hear. To them we were just an intermission act. That's what that was. It didn't mean anything but just that. You had to face it.

If anyone wanted to turn *Good Morning Blues* into a play, this image of the aging bandleader stoically accepting a deeply resented defeat might make a good curtain. But Basie's career continued for another 30 years, though his memoir rather races through them. He did not quite see the current resuscitation of jazz as the American classical music of the professional middle class and the dinner music of trendy Manhattan restaurants.

These last decades before he died in 1984 were not the most distinguished in the career of what was not the greatest big band in jazz—Basie himself constantly stresses the supremacy of Duke Ellington—but was, in many ways, the quintessential expression of the populism of jazz; and jazz remains much the most serious musical contribution of the United States to world culture. Basie is a central figure both in the golden age of the music, which coincided with the New Deal years, and in the discovery of jazz, hitherto a music of unrespectable poor blacks and hip-flask-swigging white dancers, as an art to be taken with the utmost seriousness, and a breeding ground of great artists. The discovery was largely the achievement of political radicals who devoted themselves passionately and selflessly to the joint cause of the blacks and their music, without, as Basie underlines, exploiting them.

Good Morning Blues, an oral history of Basie's career as told to the distinguished black novelist and jazz historian Albert Murray, is of considerable interest to anyone who wishes to understand the evolution of one of the few 20th-century arts that owe nothing to middle-class culture. And the original Basie band, recognized as the purest expression of big-band swing as soon as it roared out of Kansas City, owed less to the middle class and intellectuals than any other—except, of course, its discovery and training for fame.

It was not much of a "reading band" at its best. In its heyday it used little except arrangements in the musicians' heads. "I don't think we had over four or five sheets of music up there at that time," Basie recalls. It was not a respectable band, even by jazz standards. The arranger Eddie Durham, used to the college men in the Jimmie Lunceford band, found Basie's group too rowdy for him.

In *Good Morning Blues*, a notably reticent work in many ways, the attraction of the milieu of gambling, good times, women and, not least, whiskey constantly shines through the cracks in the autobiographical facade of the elder jazz statesman. His book brings out, perhaps more clearly than any other memoir, both how attractive and how important to the development of the music was that floating, nomadic community of professional black musicians, living on the self-contained and self-sufficient little islands of the popular entertainers and other night people—a street or two where the action was, rooming houses, bars, clubs—which were scattered like a Micronesian archipelago across the United States in the 1920s and '30s.

For that is where players found a milieu that accepted the overriding importance of professionalism, of getting the music right, of the strange marriage between group cooperation and ferocious competitive

testing of individuals, which is analogous to the milieu of that other creation of working-class culture, professional sports. Once again Basie's understatements and exceptional modesty muffle his account. The most he allows himself to say in the way of hype is: "I don't mean to pat myself on the back, but that band was strutting, really strutting." He is much more likely to record occasions when he suffered or evaded defeat than to exult in public. The band's true sound of locker-room triumph is to be heard elsewhere:

> We were only Count Basie's band and we got out of a ragged bus, but when we got on that bandstand we started jumping and showering down....We put a hurting on them that night and washed Lunceford out of the dance hall. (Trumpeter Harry "Sweets" Edison, quoted in Stanley Dance's collection of interviews, *The World of Count Basie*.)

The conviction of the early Basie band lay in this capacity to exult. For the professional musician of Basie's day, as he himself puts it, "playing music has never really been work." It was more even than a way of having a good time. It was, as sport is for the athlete, a continuous means of asserting oneself as a human being, as an agent in the world and not the subject of others' actions, as a discipline of the soul, a daily testing, an expression of the value and sense of life, a way to perfection. Athletes cannot use their voices to say this, but musicians can, without having to formulate it in words. So the working-class athlete's conviction produced a great art in the form of jazz; and, thanks to the phonograph, a permanent art.

Basie's strength as a bandleader lay in his capacity to distill the essence of jazz as black players felt it. That is why this inarticulate dropout from New Jersey was doubly lucky to find himself stranded, in the mid-'20s, in Kansas City. First, because it allowed him to recognize his vocation. Till then he had merely been a poor black youngster who liked playing piano and chose the only form of freedom available to his kind, the gypsy life of show business. Liberation and not money was the object ("I don't think I ever came into contact with any rich entertainers when I grew up"), and he neither made nor kept money. "I liked playing music and I liked the life." *Good Morning Blues* is a superb evocation of the underside of black show biz in the 1920s—Gonzelle White and her Big Jazz Jamboree, with whom Basie played, slowly foundering as she sailed along the circuit of black vaudeville theaters, finally sinking in Kansas City. After the wreck Basie drifted into full-time jazz "without quite being aware of the big change I was making." It was his first stroke of luck.

The second was finding himself in Kansas City, capital of that apparent cultural desert southwest of the Missouri River, which even blacks bypassed en route from the Mississippi Delta region to the bright lights of Chicago and Detroit, and which even the black vaudeville circuit still wrote off. Kansas City was long its westernmost point, which is why shows like Gonzelle White's often disbanded there. Kansas and Oklahoma were not Meccas of show biz. Apart from Kansas City and Texas, the entire Southwest had only small and scattered black populations. The first tour of the newly formed Basie band was a row of one-nighters through places like Tulsa, Muskogee, Oklahoma City and Wichita.

Yet this was the region that produced two major developments in jazz. It fused the down-home blues with popular dance-band music, and the arranged performance with the jam session, to create both the classic swing band and the most powerful experimental laboratory of jazz. Kansas City produced not only Count Basie but also the great saxophonist Charlie Parker.

Most of the talent seems to have come out of the territory, with relatively little direct recruitment from the deep South and even less from the East. Walter Page's Blue Devils, the foundation and inspiration of Basie's team, was a "territory band" working in Oklahoma. And the down-home blues that Kansas City integrated into big-band jazz was not a big-city product, nor at this stage were band-accompanied male blues shouters, who became Basie's trademark, of any interest to a white public.

The Kansas City musicians, in short, played what came naturally to southwestern blacks and largely what a segregated audience wanted. The blues was imposed on them by the ghetto. Independently, Basie and Jimmy Rushing, his band's longtime vocalist, observe of each other that in the mid-'20s Basie "couldn't play the blues then," and Rushing, who could, "wasn't really a blues singer in those days." Ten years later they sang and played little else.

The gems, mined in the dance halls of places like Muskogee, were cut and polished in the countless nightclubs and after-hours sessions of Kansas City by an unusually large community of professional musicians. But in spite of the Kansas City myth, which insists on battles won with visiting stars, and admiration from outsiders, this community thought of itself as in some sense marooned. "There was no chance for us. So there was nothing for us to do but play for ourselves," as Basie's great drummer Jo Jones puts it in *The World of Count Basie*.

Yet at first sight Basie himself had few qualifications for eminence. By jazz standards he was not a top-class pianist, especially when compared to the New York stride-piano giants in whose style he had been formed and against whom he measured himself—to his disadvantage. As one of his arrangers said: "He knew he couldn't challenge Fats Waller or Earl Hines. He didn't have the same kind of gift from above."

Nor was he a particularly literate musician, unlike most of the big-band leaders, who tended to come from a schooled background. He came into the big time with little more than a number of head-arrangements and blues, not only because he did not lead a reading

band, but because he himself was not a writer or arranger in the ordinary sense. Even his ideas had short breath. "He'd only go about four measures," says his arranger Eddie Durham. There was nothing original about the format of his band, except perhaps using two saxophones in contest. And any reader of his memoir will wonder how this easygoing, tongue-tied man managed the job of holding his team together.

In short, on paper he had no qualifications to be anything except another adequate jazz player. And with the modesty, or honesty, which is his trademark, he says as much in his tribute to the record producer John Hammond, who heard his broadcast on a car radio in 1935 as he drove through the Middle West, was bowled over by it, and made Basie into a national figure:

> Without him I probably would still be back in Kansas City, if I still happened to be alive. Or back in New York...trying to be in somebody's band, and then worrying about getting fired.

But what was it that Hammond, and later the rest of the world, recognized in Basie? Once again, the best descriptions come from others:

> He was and is [says Harry "Sweets" Edison] the greatest for stomping off the tempo. He noodles around on the piano until he gets it just right. Just like you were mixing mash and yeast to make whiskey, and you keep tasting and tasting it....Freddie Green [on guitar] and Jo Jones would follow him until he hit the right tempo, and when he started it they *kept* it.

That "tempo" was the clue to Basie, and *Good Morning Blues* begins with his discovery in Tulsa, Oklahoma, of what Albert Murray elsewhere calls "that ever-steady, yet always flexible transcontinental locomotivelike drive of the Kansas City 4/4" in Walter Page's Blue Devils, who are by common consent the pioneers of that lovely, easy, lilting rhythm both driving and relaxed. They were to form the core of his early band.

> Having set the tempo, Basie would next set a rhythm for the saxes first,...then he'd set one for the bones and we'd pick that up. Now it's our rhythm against theirs. The third rhythm would be for the trumpets....The solos would fall in between the ensembles, but that's how the piece would begin, and that's how Basie put his tunes together. (Dicky Wells, trombonist, quoted in *The World of Count Basie*.)

The great waves of ensemble riffs, hitting the audience like Atlantic rollers, were therefore—initially at least—not stylistic tricks or ends in themselves. They were the essential groundswell of the music, the setting for what the musicians themselves, in the great days, did not see as an ensemble band but as a company of creative soloists. Alas, it eventually declined into an ensemble band in response to the public. Self-effacement was also the secret of Basie's minimalist arrangements and his increasingly sparse piano interventions, whose purpose was entirely to keep the music moving.

Whatever the origin of an arrangement, it was whittled down into the Basie version by ruthless selection and cutting. Basie, who "never wrote down anything on paper," composed by editing, in other words by fitting his numbers to his musicians. But unlike Ellington, who had precise musical ideas and picked his players to fit them, the less articulate Basie was fundamentally a selector. What he heard in his head were the shapes and patterns of numbers, the rhythm and dynamics, the stage mechanics and effects rather than the plot or words of the play. ("I have my own little ideas about how to get certain guys into certain numbers and how to get them out. I had my own way of opening the door for them to let them come in and sit around awhile. Then I would exit them.") But none of this became real until he heard musicians play and recognized in the sound what he had in mind. Listening was his essential talent. That is how the Basie band in its prime—between 1936 and 1950—came to be built up and shaped by apparently haphazard recruitment and playing.

Consequently the Basie band was a marvelous combination of solo creation and collective exhilaration. It attracted and held a remarkable collection of individual talent. The intense joy of being in the early Basie band, a band of brothers, shines through the reminiscences of hard-bitten and jealous pros. Some of that joy was owing to the temperament and tact of the leader who led by articulating and crystallizing consensus. Even more was owed to the players' sense of equality, fraternity and above all liberty to create, controlled only by their own collective sense of what sounded "right." And to the end of his days Basie liked to present himself not as leader or driver, but as the fulcrum of his band, the small still center: "Keep your eye on the fellow at the piano. The sparrow. He don't know nothing, but you just keep your eyes on him and we'll all know what's going down." It was not entirely an affectation.

Those who were young in the 1930s and first heard the unanswerable sound of the early Basie band rolling across continent and oceans are tempted to call the muster roll of heroes: Basie, Page, Jones and Green, Herschel Evans and Lester Young, Buck Clayton and Harry Edison, Benny Morton, Dicky Wells, and Jimmy Rushing singing the blues. But in retrospect these were not only men who produced remarkable music and helped to create what is the classic music of the United States, but they did so in an extraordinary and unprecedented way. ♦

AMERICAN INDIANS: ASSERTING THEIR RIGHTS

By Stephen Cornell
From THE WILSON QUARTERLY

The years following World War II have marked a new era in American Indian politics. In this historical overview, Stephen Cornell examines the rise of ethnic consciousness among the many tribes and changing government policies toward the nation's only truly "Native Americans." He notes that in the early 1970s Indian protests against efforts to assimilate them into the larger society took on radical overtones; today, however, Indian organizations pursue their political and economic goals through less confrontational, though more effective legal means.

Cornell, author of a forthcoming book on American Indian politics, is a professor of sociology at Harvard University.

On the wintry night of February 27, 1973, a group of armed Oglala Sioux from South Dakota's Pine Ridge Reservation joined forces with activists from the American Indian Movement (AIM) and seized the reservation village of Wounded Knee, site of the infamous 1890 massacre of Sioux by the U.S. Seventh Cavalry. The seizure was to protest corruption in the tribal government at Pine Ridge as well as U.S. violations of the 1868 Fort Laramie Treaty (which recognized Sioux sovereignty over much of what is now the Dakotas, Montana, Wyoming and Nebraska). "We want a true Indian nation," said Carter Camp, an AIM coordinator, "not one made up of Bureau of Indian Affairs puppets."

Within 24 hours, a force of 250 Federal Bureau of Investigation agents, U.S. marshals and Bureau of Indian Affairs police had cordoned off the village. The much-publicized siege lasted 10 weeks, punctuated by exchanges of gunfire that left two Indians dead and several men wounded on each side. In May, after lengthy negotiations, the Indians surrendered to federal authorities. The second battle of Wounded Knee was over.

The 1890 massacre had brought one era to a close. As Black Hawk, war leader of the Sauk and Fox, had said of himself a half century earlier, "He is now a prisoner to the white men; they will do with him as they wish."

From *The Wilson Quarterly*, New Year's 1986.

The 1973 Wounded Knee occupation represented the culmination of another era. There had always been, of course, politics about Indians. For the most part it was non-Indian politics, carried on in Washington, D.C., among the governors of western states and territories, and among missionaries, reformers and bureaucrats. Beginning in the 1940s, however, Indians had not only been demanding a voice in federal Indian policy; increasingly, they had appropriated such a voice for themselves, forcing the surrounding society to respond. The situation today is marked by the emergence of a new and genuinely Indian politics.

In hindsight, the turning point appears to have been the Indian Reorganization Act of 1934. Prior to its passage, two goals had guided federal Indian policy: the acquisition of Indian lands and the cultural transformation of Indians into Euro-Americans—in a word, "assimilation." Those goals were enshrined in the Dawes Act (1887), which heralded the age of "allotment." Washington broke up much of the tribal land base, withdrawing some property from Indian ownership and distributing other, often marginal, lands to individual tribal members. "Surplus" lands, more often than not the richest, were then sold off to white settlers. Between 1887 and 1934, when allotment ceased, some 35 million hectares—60 percent of the remaining Indian lands—passed into the possession of non-Indians.

Allotment, which reached a peak just before World War I, was not merely a means of appropriating Indian territory. It was part of a concerted effort to break up tribal nations, of which there were—and are—several hundred, each with a distinct history, most still with a distinct culture. This effort, like everything else on the reservations, was overseen by the Bureau of Indian Affairs (BIA), established in 1824. On the reservations, the BIA put Indian children into English-language boarding schools, dispersed village settlements, moved tribal members off communal (and onto individual) tracts of land and took control of economic resources.

By the 1920s, white America's appetite for Indian lands (the best of which already had been taken) had begun to diminish. A postwar slump in farm prices helped reduce demand. Combined with the staggering extent of poverty, disease and other social ills now apparent on the Indian reservations, these circumstances created a climate for reform. But it was not until Franklin Roosevelt's election to the Presidency, and his appointment of John Collier as Indian Commissioner in 1933, that a re-

form package won approval in Congress.

Collier, a former social worker and educator, placed great faith in the power of "community." Native American communities, he was convinced, "must be given status, responsibility and power." Backed by President Roosevelt, Collier led a drive to reorient U.S. Indian Policy. The result, in 1934, was the Indian Reorganization Act (IRA).

Indian policy did an abrupt about-face. The IRA not only put an official stop to allotment; it actually allocated modest funds for expansion of the Indian land base. It provided money (though never enough) for economic development on Indian reservations and subsidies for Indians to set up tribal business corporations. But most important, it allowed Indians into the decision-making process by making explicit the right of any Indian tribe "to organize for its common welfare" and to adopt a constitution and bylaws for that purpose.

The mechanisms of the IRA—representative government, for example, and the business corporation—were alien to Indian tribes. Even so, during the next few years many groups took advantage of what has been called "the Indian New Deal." The majority of today's tribal councils is one result. For some tribes, these councils represented the first comprehensive political institutions in their history. Their powers were limited, but Indian groups now enjoyed greater control over their own affairs, including a power of veto over some federal actions. For the first time in half a century, Indians also could have federally recognized political organizations to represent tribal interests in Washington, state capitals and the courts.

Another step followed. In 1944, representatives of 42 tribes founded the National Congress of American Indians (NCAI), the first major attempt to pull together Indian groups and governments in a single, supratribal organization. The purposes of the congress, which is still active today, are: "to preserve Indian cultural values; to seek an equitable adjustment of tribal affairs; to secure and to preserve rights under Indian treaties with the United States; and otherwise to promote the common welfare of the American Indian."

If the IRA gave Indians the legal tools with which to organize, World War II gave many of them the motivation. In what the U.S. Interior Department described at the time as "the greatest exodus of Indians from reservations that has ever taken place," some 25,000 Indians joined the armed forces and saw action in Europe and the Pacific. In addition, 40,000 others quit the economic desert of the reservations for jobs in war industries. For many Indians, the experience constituted their first real exposure to the larger American society.

The identities of Native Americans have long been rooted in tribes, bands, villages and the like, not in one's presumed "Indianness." The reservation system helped to preserve such identities and inhibited the emergence of a more inclusive self-consciousness. As a result, Indians have had difficulty forming a common front. World War II brought Indians from different tribes into contact with one another, and with other Americans who thought of them indiscriminately as "Indians," not as Navahos or Apaches or Sioux.

The war also forcefully brought home to Indians their second-class status. Not surprisingly, it was Indian veterans who went to court to seek voting rights. Former soldiers were prominent in the NCAI. In 1952, *The New York Times* reported that "a new, veteran-led sense of political power is everywhere in Indian country."

After the fading of the New Deal, the status of Native Americans as wards of the federal government seemed to go against the American tradition of self-reliance. There always had been strong opposition to the IRA from the political Right and from politicians of all colorations in the West, partly on the grounds that it perpetuated an undesirably distinct status for Native Americans. Break up the tribal domains, so the argument ran, remove the protective arm of government and cast the Indian into the melting pot and the marketplace. Everyone would benefit.

By the mid-1950s Congress set out to dismantle the reservation system, disband tribal nations and distribute their assets among tribal members. The new policy, called "the Indian freedom program," received both liberal and conservative support. Reservations were seen as "rural ghettos"; the new policy would put an end to "segregation."

This was exactly what most Indians did not want, but Washington was not in a listening mood. During the summer of 1953, Congress effectively repudiated the spirit of the Indian New Deal, stipulating that Indians were to be removed from federal supervision "at the earliest possible time." Congress also transferred to California, Minnesota, Nebraska, Oregon and Wisconsin all civil and criminal jurisdiction over Indian reservations in those states—previously under federal and tribal jurisdiction. Some tribal lands were broken up and sold, while many functions once performed by Washington—such as running schools and housing programs—were usually turned over to the states or other agencies.

Meanwhile, to spur assimilation, Indians were urged to relocate to the cities. As one senator remarked: "The sooner we get the Indians into the cities, the sooner the government can get out of the Indian business." In 1940, fewer than 30,000 Indians were city residents; almost 750,000 are today. But the government is not out of the Indian business.

That is because "the Indian freedom program" did not work. The assimilationist orientation of the program, and Washington's complete indifference to the views of its target population, aroused Indians across the country. They saw in it the greatest threat to tribal survival since the Indian wars of the 19th century. The policy did not die officially until 1970, when President Richard Nixon repudiated it. Federal and

state officials had come to recognize that the policy was creating more problems than it solved.

In retrospect, the chief accomplishment of the program ran directly counter to Congress's intention: it provided Indians of diverse backgrounds with a critical issue around which to mobilize. At an Indian conference in 1961, recalled anthropologist and Flathead tribe member D'Arcy McNickle, the 500 Indians from 90 tribes who gathered for the event "had in common a sense of being under attack."

The tempest over "the Indian freedom program" coincided with a second development: the late 1950s and early '60s saw the beginnings of change in American Indian leadership and its activity. During the 1950s the number of Indians enrolled in college in the United States substantially increased. Only 385 American Indians were attending postsecondary institutions in 1932; thanks in part to the post-World War II G.I. Bill, which helped finance the education of returning veterans, that number had swelled to 2000 by 1957. On campuses, off the reservations, educated Indians from different tribes began to discover one another.

In 1954, Indian students began holding a series of youth conferences in the Southwest to discuss Indian issues. The largest such conference, in 1960, drew 350 Indians from 57 tribes. Some of the participants eventually turned up at the 1961 conference—and found themselves at odds with the older, more cautious tribal leaders.

Two months later, at a meeting in Gallup, New Mexico, 10 Indian activists of various tribes founded the National Indian Youth Council (NIYC). "We were concerned with direct action," recalled one leader. It was time for Indians "to raise some hell."

They began raising hell in the Pacific Northwest. The trouble started during the early 1960s, when the state of Washington arrested Indians fishing in off-reservation waters. Though in violation of state regulations, "the right of taking fish at accustomed places" had been guaranteed by the Treaty of Point No Point and other agreements made during the 19th century between various northwestern tribes and the United States. In 1964, a new regional organization—Survival of American Indians—joined the NIYC in protests supporting Indian treaty rights. They held demonstrations at the state capitol in Olympia and, more provocatively, sponsored a series of "fish-ins," deliberately setting out to fish waters forbidden to them by the state.

Growing numbers of Indian tribes became involved and began to assert their claims in defiance of court injunctions and state actions. The protests continued into the 1970s and became more violent. Ultimately, in 1974, a federal court ruled in the tribes' favor on the fishing-rights issue, a decision upheld by the U.S. Supreme Court five years later.

Indian activism did not appear only in the countryside; it erupted in the cities as well. For many Indian migrants of the postwar period, the move from the reservation to Denver, Chicago, Seattle and other cities merely replaced one form of poverty with another. To state and local officials, urban Indians, just like reservation Indians, were the sole responsibility of the Bureau of Indian Affairs.

The two most militant Indian political organizations took root in the cities: the American Indian Movement, founded in 1968, and Indians of All Tribes, which materialized a year later.

AIM first made its mark in Minneapolis, organizing the Indian Patrol to combat alleged police brutality in Indian neighborhoods. It soon had chapters in cities throughout the Midwest. Indians of All Tribes was founded in San Francisco in response to a specific incident. On November 1, 1969, the San Francisco Indian Center burned to the ground. There was no ready replacement for the building or the services that it provided. On November 9, a group of Indians—perhaps a dozen—landed on Alcatraz Island in San Francisco Bay, site of an abandoned federal prison, and claimed it for a new Indian center. Authorities removed them the next day. The Indians returned on November 20, now 80 strong. By the end of the month several hundred were living on the island, calling themselves Indians of All Tribes. Wary of public reaction to the use of force, federal officials pursued negotiations for 19 months. Not until June 1971 did federal marshals and the Coast Guard retake "the Rock."

Alcatraz was a watershed. It drew massive publicity, providing many Indians with a dramatic symbol of self-assertion. During the next five years Indians occupied Mount Rushmore in South Dakota, Plymouth Rock in Massachusetts and more than 50 other sites around the country for varying lengths of time. The wave of takeovers culminated with the seizure of the BIA headquarters in Washington, D.C., in 1972, and the Wounded Knee occupation in 1973. All made for vivid television news stories.

Radical Indian action has abated since the mid-1970s. But the new Indian politics has involved more than land seizures and demonstrations. Beginning in the late 1960s, new federal programs established links between Indian leaders and the government. By 1970, more than 60 Community Action Agencies had been established on Indian reservations. Federal funds were being used to promote economic development, establish legal-services programs, and sustain tribal and other Indian organizations.

Indian activists also have turned to the courts. The legal weapon is especially potent in the Indian situation because the relationship of Native Americans to the United States is spelled out in a vast body of treaties, court actions and legislation. In 1972, for example, basing their case on a law passed by Congress in 1790 governing land transactions made with Indian tribes, the Penobscot and Passamaquoddy tribes filed suit to force the federal government to protect their claims to more than half of the state of Maine. This action led eventually to the Maine Settlement Act of 1980, which deeded 120,000 hectares of timberland

to the two tribes.

Behind such actions lies an assortment of Indian legal organizations that sprang up during the 1970s, staffed by a growing cadre of Indian lawyers and supported by both federal and private funds. Indeed, organizing activity of every stripe has marked the past two decades. By the late 1970s, there were more than 100 intertribal or supratribal Indian organizations, most with political agendas, many with lobbying offices in Washington.

Despite generally low Indian voter turnout, Indians have not ignored electoral politics. In 1964, two Navahos ran for seats in the New Mexico state legislature and won, becoming the first Indian representatives in the state's history. Two years later, 15 Indians were elected to the legislatures of six western states. In 1984, 35 Indians held seats in state legislatures.

Of course the leverage Indians can exercise at the polls is limited. In only five states (Alaska, Arizona, New Mexico, Oklahoma and South Dakota) do Indians make up more than five percent of the population. At the local level, on the other hand, Indians are occasionally dominant. (Apache County, Arizona, for example, is nearly 75 percent Indian.) Indians also can make a difference in particular situations. In 1963, after the South Dakota legislature had decided that the state should have civil and criminal jurisdiction over Indian reservations, the Sioux initiated a "Vote No" referendum on the issue. They campaigned vigorously among whites and were able to turn out their own voters in record numbers. The referendum passed, and the legislation was overturned.

While Indians lack more than limited political clout in elections, during the 1970s they found new opportunities in the economy. The 1973-74 energy crisis and rising oil prices sent the fortunes of some tribes through the roof. Suddenly, Indian lands long thought to be worthless were discovered to be laden with valuable natural resources: one-quarter or more of U.S. strippable coal, along with large amounts of uranium, oil and gas. The tribes began demanding higher royalties for their resources and greater control over the development process. The result, for some, was a bonanza. Most of the money, however, went to only a few tribes, much of it to meet the needs of desperately poor populations.

The new Indian assertiveness, in its multiple manifestations, has had a major impact on U.S. policy. In 1975, responding to "the strong expression" of Indians, Congress committed itself to a policy of "self-determination," to provide "maximum Indian participation in the government and education of the Indian people." From now on, the government not only would attempt to listen to Indian views and honor Indian agendas but also would grant Indians a central role in the implementation of policy.

But self-determination raises an awkward, chronic question: What do Indians want?

According to Bill Pensoneau, former president of the National Indian Youth Council, what Indians want is "survival." In his view, it is not individual survival that is of primary concern. What is at stake is the continued existence of distinct, independent, tribal communities.

Among other things, that means jobs, health care, functioning economies, good schools, a federal government that keeps its promises. These have not been any easier to come by in recent years. Federal subsidies to Native Americans have been cut steadily under the Reagan Administration. Aside from those with lucrative mineral rights, few tribes have been able to make up for losses of federal subsidies. With no economic base to draw on, most have found themselves powerless in the face of rising unemployment, deteriorating health care and a falling standard of living.

But the survival question cuts more deeply than economic problems and reveals substantial divisions among Native Americans themselves. There are those who believe that survival depends on how well Indians can exploit the opportunities offered by the larger (non-Indian) society. Others reject that society and its institutions; they seek to preserve or reconstruct their own culture.

There are many points of view in between. Ideological divisions mirror economic and social ones. In the ranks of any tribe these days one is likely to find blue-collar workers, service workers, professionals and bureaucrats, along with those pursuing more traditional occupations. Most tribes include both reservation and city populations, with contrasting modes of life. The resultant Indian agenda is consistent in its defense of Indian peoples but often contradictory in its conception of how best they can be sustained. This proliferation of Indian factions, many of them no longer tribally defined, has made Indian politics more difficult for even the most sympathetic outsiders to understand.

The Indian politics of the 1960s and '70s, both confrontational and conventional, was too fragmented, the actors were too dispersed, the goals too divergent to constitute a coherent, organized, political crusade. What it represented instead was the movement of a whole population—a huge collection of diverse, often isolated, but increasingly connected Indian communities—into more active political engagement with the larger society, seeking greater control over their own lives and futures. To be sure, it did not solve fundamental difficulties. But in the world of Indian affairs, it was a remarkable phenomenon, surpassing in scale and impact anything in Indian-white relations since the wars of the 19th century. ♦

THE PROMISE OF FISH FARMING

By Lester R. Brown

In the past decade, overfishing in the world's oceans has led to smaller catches. To compensate for this decline in an important source of food, scientists, governments, international organizations and individual farmers have rediscovered an ancient technology—fish farming or aquaculture, the practice of raising fish as a crop in a confined area. In this article ecologist Lester R. Brown discusses methods of fish farming in different countries and concludes that it is a promising way of improving nutrition in the world.

Brown is president of the Worldwatch Institute, a Washington think tank concerned with problems of global resources. The author of Building a Sustainable Society *and* Food or Fuel, *Brown also edits* State of the World, *Worldwatch's annual research report, from which this article is excerpted.*

Fisheries occupy an important niche in the global ecosystem, the world economy and the human diet, supplying 23 percent of all animal protein consumed. In many developing countries, as well as in a few industrial ones, fish are the principal source of animal protein. The fishing industry is also important economically. The World Bank estimates that 12 million workers worldwide support themselves by fishing or fish farming; millions more are involved in the transportation, processing and marketing of their catches.

Since 1970, however, the annual fish catch per capita has been steadily declining worldwide; population increases and rising per capita incomes have increased the demand for fish so much that overfishing has become widespread. But as oceanic fishing has seemingly reached its maximum level, interest in fish farming has increased.

Fish farming is not a new concept. In China, where it may have originated as early as 4000 years ago, fish were domesticated shortly after livestock. Although fish farming, or aquaculture (which also includes seaweed), has been practiced for at least a few millennia and in scores of countries, the world output has been only a fraction of the oceanic catch. In 1983, fish farming accounted for roughly nine million tons of the total fish harvest of 74 million tons.

Over the past decade and a half, however, interest in aquaculture has increased considerably among economic policy makers, international-aid agencies, farmers and corporate investors. Such international-aid agencies as the World Bank and the United Nations' Food and Agriculture Organization (FAO), which previously concentrated on investments in better boats and improved ports and processing facilities, shifted toward fish farming during the 1970s. Two resource-related developments have been responsible: the increasingly evident limits to the yield of natural oceanic and freshwater fish stocks, and the depletion of oil reserves and associated rise in price of fuels so essential to distant fishing. These pressures, in conjunction with the establishment of 320-kilometer offshore exclusive economic zones by more than 100 countries, have drawn attention to fish farming.

Determining exactly how rapidly fish farming is expanding is as difficult as trying to gauge output from home gardening or estimating how much wood is used for fuel. Because many Third World villagers raise fish in backyard ponds for home consumption, there is often no market point at which to gather information.

China, with an estimated annual aquacultural output of just over four million tons, is far and away the world leader. Japan ranks second, with about one million tons—roughly one-third each of finfish, shellfish and seaweed. Given the rapid strides in American fish farming during the early 1980s, the United States is likely to move soon into the top 10 aquacultural producers.

The continental distribution of aquacultural output is highly uneven, with Asia accounting for over half the worldwide total and Europe and North America ranking a distant second and third. In most of Latin America and Africa, fish farming is still in an embryonic stage.

India narrowly edges China for world leadership in finfish aquaculture. In both cases, carp is the main type of fish cultivated. In South Korea, seaweed and shellfish dominate the output, while Soviet fish farmers confine their attention almost entirely to finfish. In Europe, the main products are mussels and oysters.

U.S. aquacultural output is among the most diversified in the world, including both omnivorous species such as trout and herbivorous feeders such as catfish. Americans consider carp too bony to be a prime table fish. Instead, the channel catfish dominates. American catfish output, less than 3000 tons in 1970, reached 62,400 tons in 1983, about one-third of the American aquacultural yield.

Worldwide, aquaculture provides roughly one-

sixth of the fish humans consume. In China and India, aquaculture accounts for more than one-fourth of total fish consumption; in the Philippines, for about one-tenth of the total.

Fish farmers in these and many other countries follow common practices. For example, the vast majority of the world's aquaculturalists also grow crops and raise animals. In part this is because aquaculture requires land—and farmers own most of the area that is suitable. There are also mutual efficiencies to be gained from the integration of agricultural and aquacultural production. Many Third World farmers efficiently combine raising pigs or poultry, particularly ducks, with fish farming by using animal waste to fertilize the fish ponds. But the gains do not stop there: frequently, when the fish pond is drained for harvesting, the sludge from its bottom is gathered and spread on fields as organic fertilizer.

Another form of agricultural/aquacultural integration involves rotating land between the two activities. In the southern United States, for example, catfish farmers frequently alternate between crops of catfish and soybeans. This practice cuts the production costs of soybeans since the nutrient-rich residue on the land after one year of intensive catfish farming substantially reduces outlays for chemical fertilizer.

Although there are considerable benefits to be gained from combining fish farming with crops and livestock, fish can be farmed on a small scale wherever the physical resources are available. The millions of fish farmers in east Asian countries—such as China, the Philippines and Indonesia—typically have less than one hectare each. Catfish producers in Mississippi usually average more than 50 hectares per farm. The total area each nation devotes to fish farming varies widely, from 740,000 hectares in China to about 100,000 hectares in the United States, a relative newcomer to the industry.

The size of the farm may differ, but the most basic needs are land that can be used for a pond—preferably over soil with sufficient clay to hold water—and a source of water and some feed. However, as land has become scarce with the increase in world population, aquaculture has embarked on a path remarkably similar to agriculture. Normally this effort to increase yields has involved fertilizing the ponds by using organic waste or chemical fertilizer. But more recently it has evolved into feeding fish balanced rations, including high-protein concentrates, similar to those used with livestock and poultry.

Another technique used to maximize output is called polyculture—the cultivation of several fish that have different food habits. Chinese fish farmers commonly combine grass carp that feed on grass and other vegetation, silver carp that need phytoplankton, bighead carp that eat zooplankton and common carp that feed on insects. Israeli fish culturalists also have adopted this system, which yields roughly 30 percent more than raising any single species.

One of the attractions of fish farming is the high efficiency with which fish convert vegetable matter to meat. Beef cattle in America require roughly seven kilograms of grain to produce one kilogram of meat. Catfish, by contrast, require only 1.7 kilograms of grain to produce one kilogram of fish. Fish are more efficient food converters than farmyard species for two reasons. First, fish are cold-blooded and do not need to consume large amounts of energy to maintain a high and steady body temperature. And second, because they live in the water, fish do not require much energy for locomotion.

One form of aquaculture requires little expense for food in raising the fish. In fish ranching, as opposed to farming, fish are kept in captivity only for the early part of their life. With their strong homing instinct, anadromous fish—which spawn in freshwater streams but spend most of their lives in salt water—are well-suited for this type of aquaculture. These species are hatched and confined until they reach the smolt stage—about two years old—when they are released for their journey to the ocean, where they will stay until they are mature and return to spawn.

Fish ranching differs from fish farming in several ways. While farming involves many species, commercial fish ranching has to date been broadly successful with only one: salmon. This does not rule out commercial possibilities with other species, but thus far they have been ranched on a limited scale.

The second main difference involves feeding. Whereas farmers must provide all the food for the fish they raise, this is not the case with salmon ranchers. Researchers estimate that only one percent of a salmon's growth occurs while it is in a hatchery. For the two, three or four years it lives in the sea, the salmon forages on its own. The great attraction of salmon hatching and ranching is that the investment in feeding is limited to the time between hatching and when the tiny smolts are ready for their long feeding migration to the sea.

The only countries with extensive salmon hatcheries and annual releases of this fish are Japan, the Soviet Union and the United States. By 1990, these three countries are expected to release a total of six thousand million smolts into the North Pacific. In addition, Britain, Norway, Canada and Sweden have smaller operations. The Japanese now release over one thousand million smolts each year in rivers and streams on the islands of Hokkaido and Honshu. After feeding near Alaska, the salmon return to the Japanese waters. Soviet salmon ranchers are not far behind their Japanese counterparts, and their goal is to release three thousand million smolts annually by the end of the century.

Fish ranchers do not need to invest in fishing trawlers or other energy-consuming harvesting equipment. The near-legendary homing instinct of salmon makes them exceedingly easy to harvest when they return to the hatcheries. Both the Soviets and the Japanese practice terminal harvesting in addition to the more conventional high-seas drift-net harvesting. Instead of catching the salmon from boats, they either place nets across streams or use small nets to catch each fish. If the processing factories are adjacent to the spawning streams, the salmon are channeled into diversion

chutes from which they are manually transferred to a conveyor belt that leads into the processing plant.

In the natural state, only an estimated one percent of the smolt return as adults, for many predators and obstacles await the small salmon as they move toward the sea. Steady progress in improving the health and vigor of the juvenile salmon released has raised the share returning at maturity to over two percent at Japanese hatcheries. Because the returning adults are many times larger than the smolts, Japanese fish ranchers calculate that for each kilogram of juvenile salmon released from hatcheries they get 80 kilograms of mature salmon returning.

Success with salmon ranching in the Northern Hemisphere has led to the introduction of salmon into the southern oceans, where they do not naturally live. Chinook salmon smolts from the University of Washington stock were released in Chile in 1980. The percentage that returned as adult chinooks two years later greatly exceeded the expectations of the marine biologists conducting the experiment. They hope that salmon released along the southern Chilean coast will feed on the enormous stocks of tiny krill in the oceans around Antarctica, converting what is now a very low-value seafood source into a more widely demanded one. The success of this work in Chile has raised high hopes of salmon ranching in New Zealand, too.

Norwegian scientists also have been highly successful at producing salmon smolts. But Norway is far from the salmon's natural feeding grounds, and many salmon probably would be lost to the numerous North Atlantic fishing boats. So the Norwegians have opted to farm salmon rather than ranch them. Thus the salmon are fenced in, usually in pens within natural enclosures such as fjords. In Scotland, farmers raise salmon in large floating cages usually located in sea lochs. For them, the disadvantages of having to feed the fish throughout an entire life cycle are offset by the much lower rate of loss of the newly hatched fish.

Salmon ranching has made great strides in recent years due to the recent spate of government and corporate investment in the industry. But it takes more than just money; recent scientific developments also have helped the industry. Salmon ranching and fish farming in general have been aided by selective breeding, improving a species or creating a new kind of fish by choosing which genes to combine. The ability of fish farming to satisfy protein needs at a low cost depends on the development of species that feed low in the aquatic food chain. Scientists at the International Center for Living Aquatic Resources Management in the Philippines have focused their selective-breeding efforts on tilapia, carp, mullets, milkfish, clams and oysters—all species that feed on aquatic vegetation. Over the long term, the future of tropical aquaculture appears to reside in these species.

This systematic application of science to the breeding, nutrition, disease-control and rearing practices of aquatic organisms, however, is still in the early stages. In contrast to livestock husbandry, which is based on several species that were domesticated thousands of years ago, many species of fish have been artificially cultivated only within the last generation. One concern that always follows the domestication or semidomestication of any species is the loss of genetic diversity. Some fishery experts in the United States are worried about this possibility in hatchery-reared stocks generally; they also are concerned with how these fish will compete with native stocks.

As a form of animal husbandry, aquaculture itself must compete with the production of beef, pork, poultry, eggs and milk for the use of land, water, labor, fertilizer and feedstuffs. Fish farming will succeed only where it can compete with other forms of food production in terms of costs and appeal to consumers.

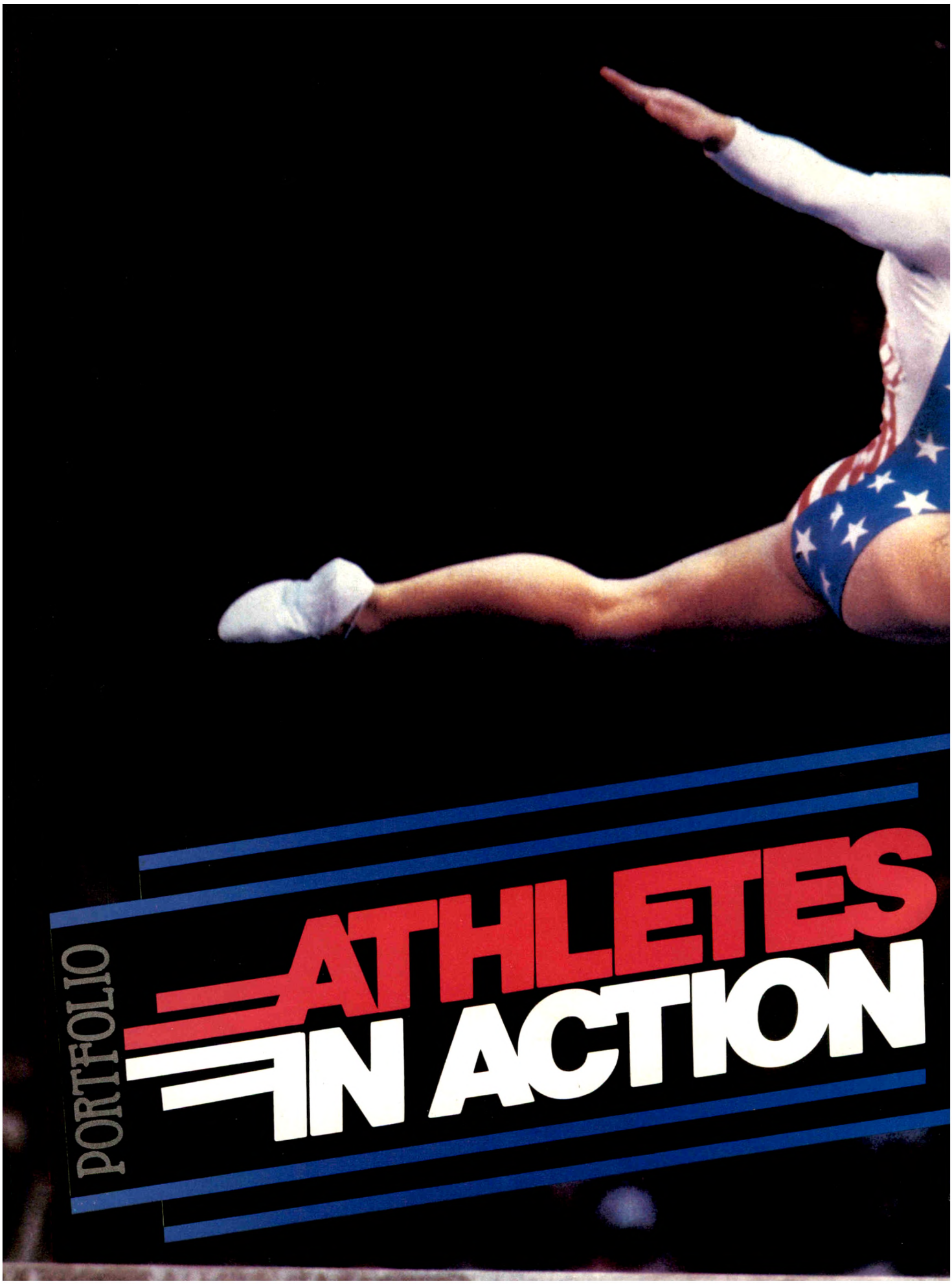
But in a world where pressure on resources is mounting, aquaculture also should be seen as a means of tapping unused resources. For example, fish can be farmed on low-lying land that is not suitable for crop production. To the extent that fish farming uses such resources or is integrated with livestock or crop production, it is bound to expand more rapidly.

One of the constraints on aquacultural growth is land availability. A World Bank study observes that some countries, such as China, have only a modest potential for expansion. Others—the Philippines, Thailand or Sri Lanka, for instance—can greatly expand the area devoted to fish farming. As a general matter, aquacultural expansion faces the same land, water and energy constraints that agriculture does.

Adequate funding for aquaculture projects is another constraint. But as money is withdrawn from distant-water fisheries, the funds spent on fish farming and ranching are increasing. It is estimated, for example, that farmers in the United States have invested some $400 million in catfish-production facilities. In developing countries, the World Bank, the Asian Development Bank and the Inter-American Development Bank all are increasing the farming share of their fishery loans.

That fish farming is destined to expand seems clear. How fast it will do so is less certain. Most of the projections of future aquacultural output have proved to be overly optimistic. In 1978, for example, the National Academy of Sciences in the United States anticipated that world output by the year 2000 would reach 50 million tons, of which one million tons would be produced in the United States. The United States may come close to this figure, given its impressive progress, but growth in this field elsewhere is only a fraction of the projection.

Although fish farming is practiced in many countries, it has developed into an industry only in recent years. For most species, genetic improvements through breeding are still in the early stage. Advances in disease control and in fish nutrition are likely to be impressive in the years ahead. All told, it looks as though growth in fish farming will accelerate as demands on the Earth's food-producing resources intensify. ♦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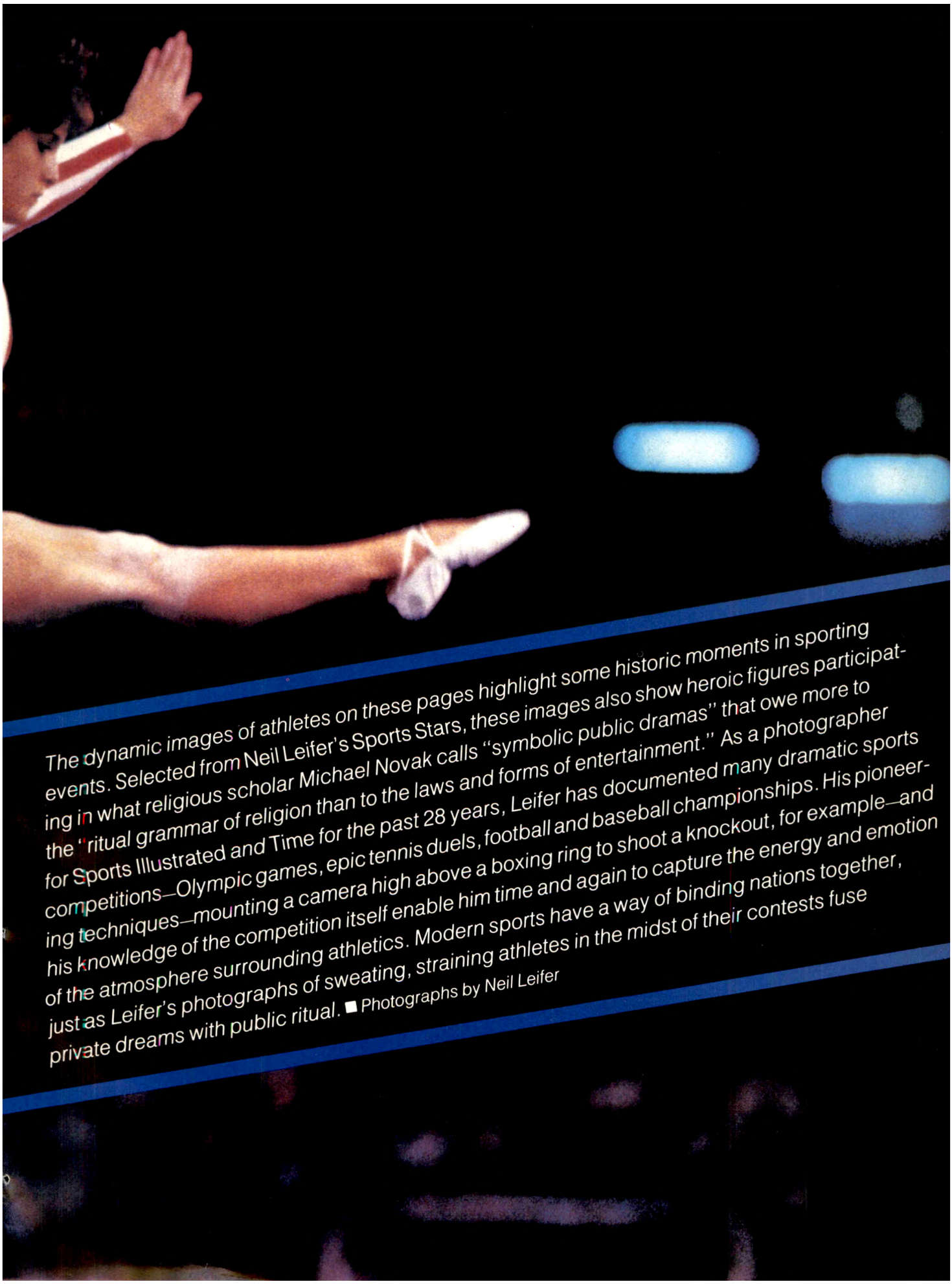

The dynamic images of athletes on these pages highlight some historic moments in sporting events. Selected from Neil Leifer's Sports Stars, these images also show heroic figures participating in what religious scholar Michael Novak calls "symbolic public dramas" that owe more to the "ritual grammar of religion than to the laws and forms of entertainment." As a photographer for Sports Illustrated and Time for the past 28 years, Leifer has documented many dramatic sports competitions—Olympic games, epic tennis duels, football and baseball championships. His pioneering techniques—mounting a camera high above a boxing ring to shoot a knockout, for example—and his knowledge of the competition itself enable him time and again to capture the energy and emotion of the atmosphere surrounding athletics. Modern sports have a way of binding nations together, just as Leifer's photographs of sweating, straining athletes in the midst of their contests fuse private dreams with public ritual. ■ Photographs by Neil Leifer


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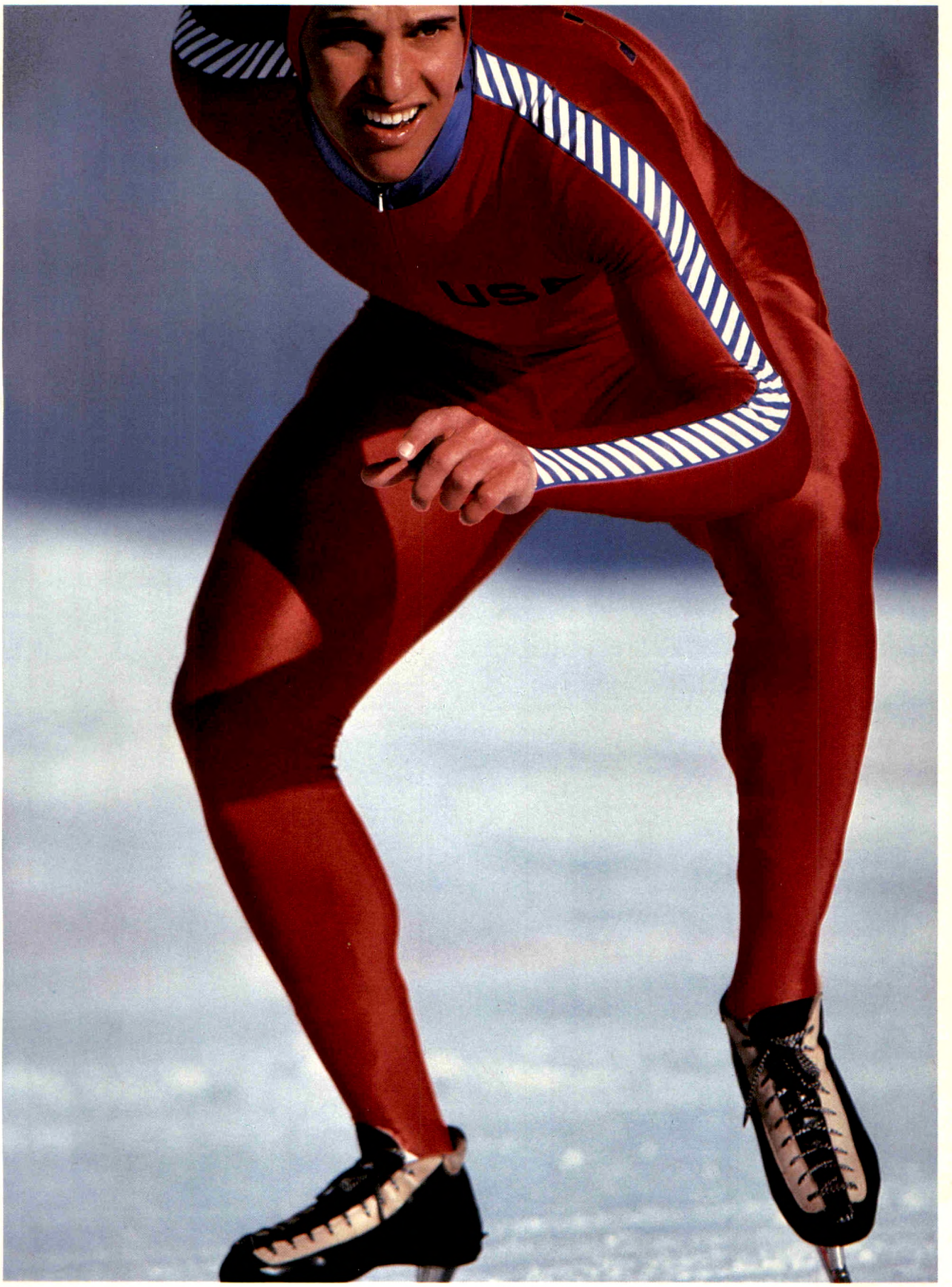
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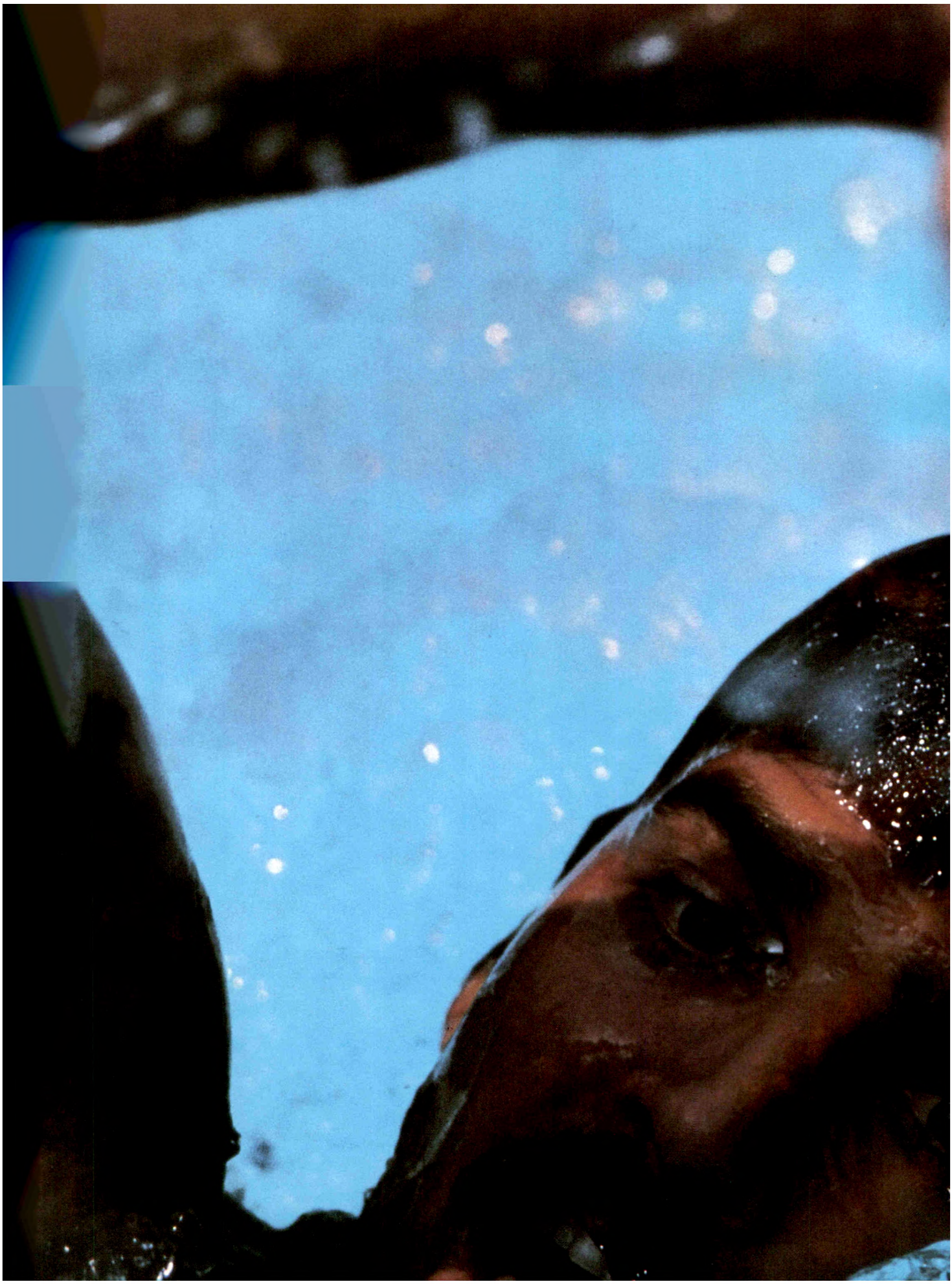

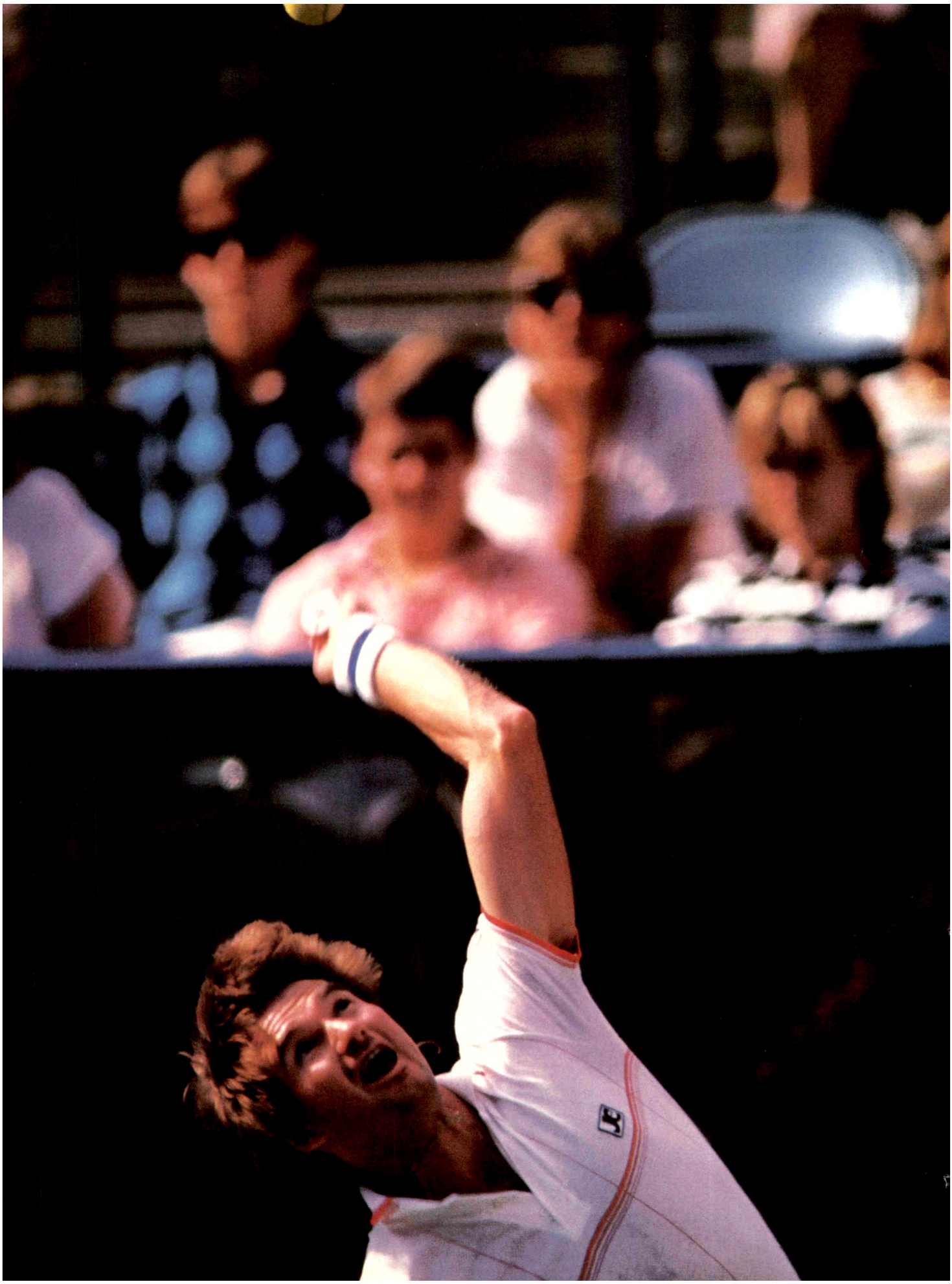

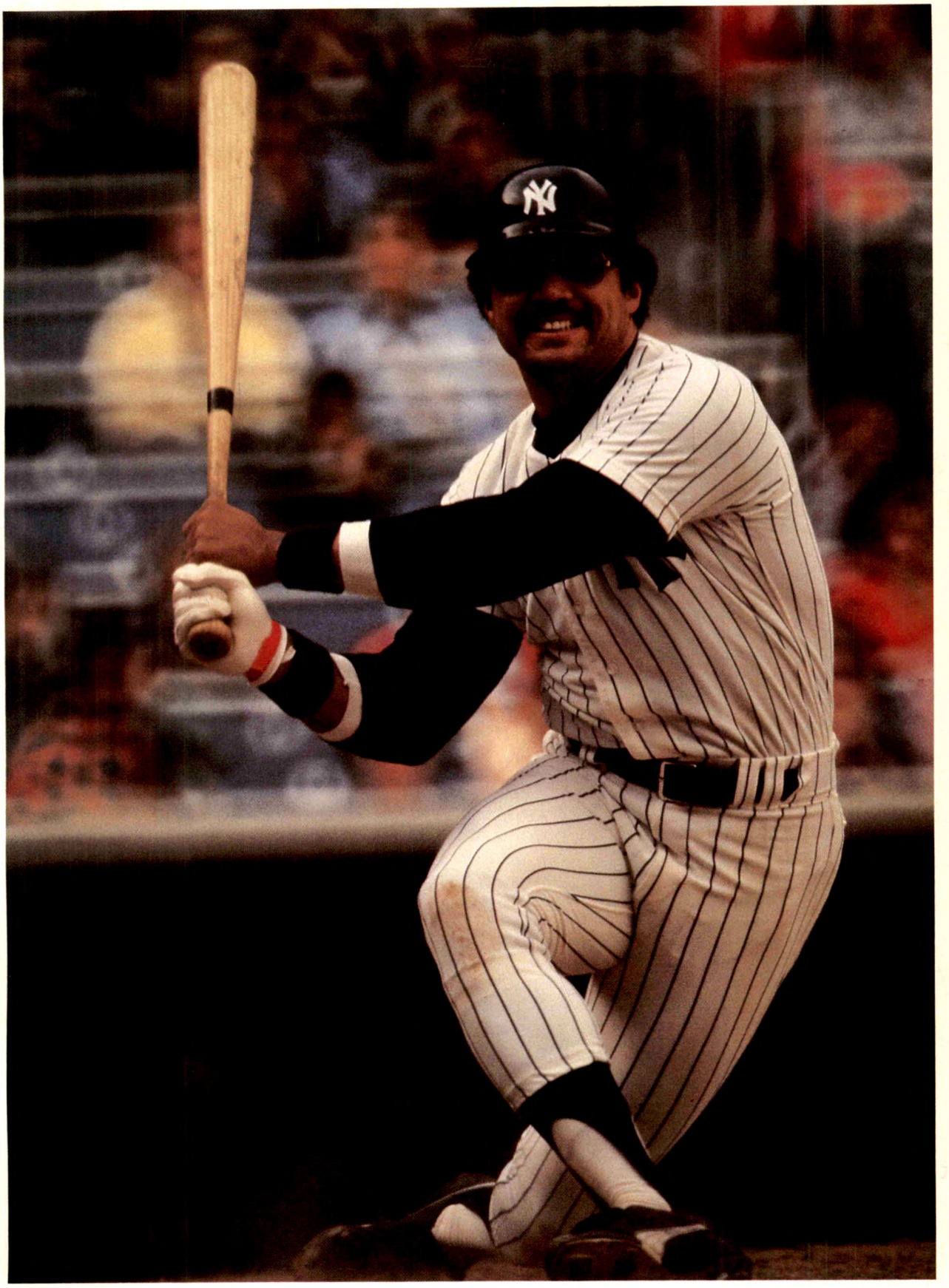


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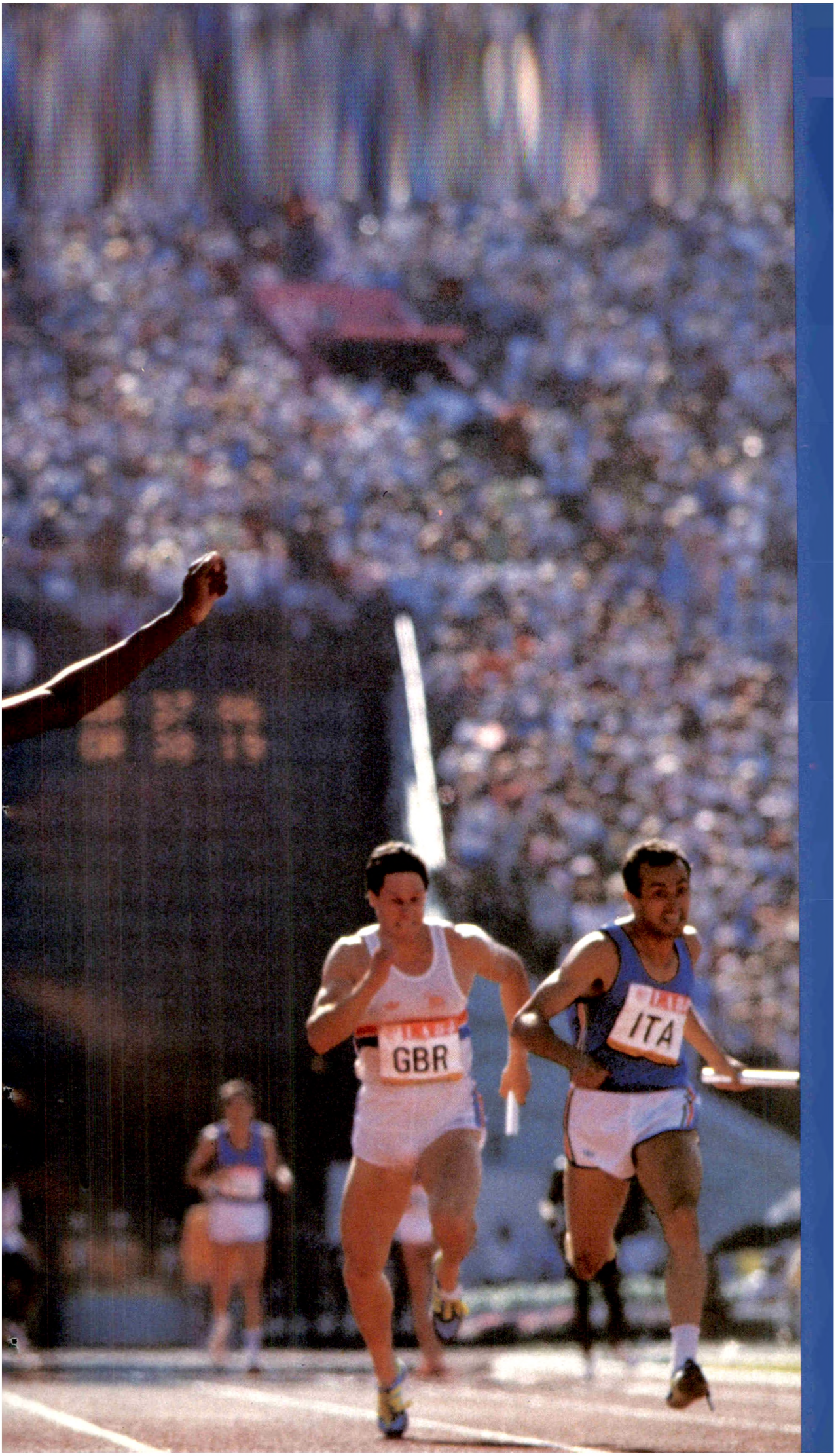
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E.L. DOCTOROW

Photograph by Thomas Victor

The myth maker

By Bruce Weber
From The New York Times Magazine

The novelist E.L. Doctorow is best known for mixing fiction with historical fact, by placing his stories within the framework of public events. Called a "public dreamer" for integrating the front-page news of 20th-century America with the lives of his characters, Doctorow gives readers the "feel" of an era, combining the portentous and the commonplace. His latest novel, World's Fair, *excerpted here, shows how the events of the turbulent 1930s helped mold the sensibilities of his young, autobiographical protagonist.*

Bruce Weber writes frequently on literary topics for The New York Times *and* Esquire.

Edgar Lawrence Doctorow is 55, and on almost anyone's list he is counted among the leading dozen serious American novelists today. Although he is not simply a writer of entertainments, his books sell widely, and three—*Ragtime*, *The Book of Daniel* and *Welcome to Hard Times*—have been made into movies. Readers, some critics excepted, have come to relish the blending of fact and fiction that marks his odd scrutiny of the American past. In his recently published seventh book, *World's Fair*, he turns his historically inventive method on himself, drawing heavily on material gleaned from his 1930s boyhood. Doctorow has called it "a portrait of the artist as a very young boy." Although outwardly his quietest novel, *World's Fair* uses the Bronx area of New York City, much as James Joyce did Dublin, as a window through which to witness the tremors of a whole society.

City-born and bred, Doctorow has become a suburban sort, with homes in Sag Harbor on Long Island and in New Rochelle, the house he and his wife, the novelist Helen Henslee, bought in the early 1960s and that served as the setting for part of *Ragtime*. He also keeps a small apartment in New York City, in Greenwich Village near New York University, where he teaches in the graduate writing program.

Doctorow's diverse and unpredictable fiction is known for its juxtaposition of familiar cultural, political and historical markers with prominent fabrications. But it is marked by a narrative style that is forthright, declarative and presumptuous of verisimilitude. In *Ragtime*, his chronicle of America hurtling toward World War I, Doctorow embellished his narrative with depictions of unlikely occurrences in the lives of famous people: secret meetings between American industrialists Henry Ford and J. Pierpont Morgan; Sigmund Freud and Carl Jung visiting New York City's Coney Island and boating together through the "Tunnel of Love"; the contortionist Harry Houdini's encounter with the Archduke Francis Ferdinand.

The magic of *Ragtime*'s invention was persuasive enough to win for Doctorow the National Book Critics Circle Award for fiction. The book's success launched Doctorow into the top echelon of American novelists, permanently enhancing his readership and the critical appreciation for the entirety of his work.

Doctorow's subject, to speak broadly, has been the evolution of the American perspective. He's interested in how the past is responsible for present-day American attitudes. His novels shed their most provocative light on the contemporary world, and thus none of them could aptly be described as historical fiction in the conventional sense. "I have this concept of history as imagery," he says, "and therefore as a resource for writing. This is a very volatile society, constantly changing, enormous. Every few years, there's a great infusion of immigrants, immigrant cultures. And so it's extremely

difficult to find whatever community there needs to be for a writer and readers to exist together. Somehow, I must have perceived that what we have in common is this country's history."

The main narrative of *World's Fair* takes the form of a memoir, beginning with the narrator's earliest recollections of his infancy and concluding before his 10th birthday with two forward-looking visits to the futuristic World's Fair of 1939. Doctorow's sixth novel, it follows a year after *Lives of the Poets*, a collection of six stories and the title novella, the latter ostensibly an examination of the mind of the man who has written the stories. In *World's Fair*, he has named the protagonist after himself, the members of the boy's family after those of his own. He sees the novel and the novella as connected, portrayals of the writer's life from the two chronological ends of it he knows, but he says quickly that though the lives of his most recent protagonists superficially resemble his own, they are, at bottom, invented.

"Every book I've ever written, people ask me how autobiographical it is," Doctorow says. "There's always that rich current of innocent readers who think that what they ask is a compliment: 'What you've written is so believable and so true that I have to ask you this question.' I, however, have always been a writer who invents, and I think books are something you make.

"Henry James has a parable about what writing is," Doctorow says. "He posits a situation where a young woman who has led a sheltered life walks past an army barracks, and she hears a fragment of soldiers' conversation coming through a window. And she can, if she's a novelist, then go home and write a true novel about life in the army. You see the idea? The immense, penetrative power of the imagination and the intuition."

Doctorow's novels have, it would seem, been largely intuited. Until recently, his life has been sparsely evident in his fiction. The book before *Lives of the Poets* was *Loon Lake* (1980), the story of an enterprising drifter during the Depression, notable, among other reasons, for a boldly fitful narrative method that employs shifting, tough-to-track points of view. Before *Ragtime* came *The Book of Daniel* (1971), which had at its center the 1951 trial of Ethel and Julius Rosenberg, who were accused of conspiracy to commit treason.

Big as Life (1966) is a queer fantasy about people thrown together by an emergency in New York City that has been effected by the sudden, unexplained appearance in the lower Hudson River of two seemingly immobile human giants. Doctorow calls it "a rather weak book," and he won't allow it to be reprinted; hence, it remains his only work that is currently out of print.

By any standard, it is a strong output: experimental fiction that resists categorizing. *Daniel*, with its exploration of American radicalism, *Loon Lake*, with much of its focus on 1930s labor issues, and *Ragtime*, with its indictment of a complacent upper class and its portrayal of scabrous capitalists, have caused Doctorow to be seen as ideologically allied with the political Left and identified by some critics as a political novelist. He has, in fact, given time to several liberal causes, speaking recently in New York City against apartheid and at a rally in Chicago opposing further nuclear-arms proliferation. But as a writer, he says, his motivation is ethical rather than political.

Doctorow's subject has been the evolution of the American perspective. He's interested in how the past is responsible for present-day American attitudes. His novels of past events shed a most provocative light on the contemporary world.

"If I'm a leftist, it's because, as I think of them, the Ten Commandments are a very left dogma," Doctorow says. "What is just? What is unjust? That's where it all begins for me. But I tend not to accept any modification of the word *novelist*. So if you ask, Am I a historical novelist, I say no. Am I a political novelist? No. Am I an ethnic novelist? No. I'm a novelist." Asked if there is a signal authorial mark that links his books, he points out that in every one except *Big as Life* there is a storyteller within the story, the invention of an authority other than his own. "There are always characters in the books who do the writing," he says. "I like to create the artist and let the artist do the work."

In contrast to the variety in his imaginative life, there is a fundamental stodginess to his actual one. "My life is very quiet, dull, bourgeois," Doctorow says. "A wife and three terrific children. We have a close family life."

Doctorow was born in 1931, the second child of second-generation Americans; both his mother's and father's families were Russian Jews. Doctorow's was a Depression upbringing, and amid the immediate practical concerns and the household's intellectual and political ideals, he conceived an affection for literature. His parents were readers. "Books were important to them," he says, "books and music." He was named after the 19th-century American writer Edgar Allan Poe. And he remembers his older brother returning from the Army in 1945, enrolling in a creative writing course, and writing a novel sitting at the kitchen table. It was

never published, but "I was very impressed," Doctorow says, "a sanctioned adult, doing that."

Doctorow was educated at Bronx High School of Science and Kenyon College in Gambier, Ohio, where he was a student of the critic John Crowe Ransom and a classmate of the late poet James Wright. He spent a year in the graduate program in drama at Columbia University, where he met his wife, before serving in the military from 1953 to 1955. He had hoped, on returning to civilian life, to support his family on his mustering-out pay, while he, like his brother, wrote a novel. The plan proved unrealistic, and he had to seek steady work, first as an airport reservations clerk and then as a reader for CBS Television and Columbia Pictures.

"I was reading a book a day and writing a synopsis," he says. "It's actually not a bad apprenticeship for a writer. You can't help but develop an editorial capability, doing that kind of work on a daily basis. It's also good for young writers to see how much bad stuff is published. It's very encouraging."

He wrote his first novel, *Welcome to Hard Times*, in response, he says, to all the dreadful genre novels he was exposed to on the job, and shortly after completing it, he went from movies into publishing as an editor, first at New American Library, subsequently as a precocious 33-year-old editor in chief at Dial Press, and eventually the publisher there as well. "There was a wonderful sense of indeterminacy floating through that place," Doctorow says. "It was a 60-hour-a-week job, easy. And I found myself dealing with formidable literary personnages—Jimmy Baldwin, Norman Mailer, Vance Bourjaily, Tom Berger—but it was a very small, unbusinesslike place."

By the time he had decided to leave Dial in 1968, he was at work on the manuscript that would become his third novel, *The Book of Daniel*. It was a decision he made with initial misgivings. *Big as Life* had been received coolly, and he was struggling with the new book. He withdrew from Dial by increments, requesting a three-month leave of absence, which he was granted with pay, and then requesting a second three-month leave, which he subsidized himself. Fortuitously, by that time, he had been offered his first teaching post, at the University of California, Irvine, and he took it.

Since then, Doctorow has taught at Princeton University, the University of Utah, Sarah Lawrence College and now New York University. But his devotion has been otherwise solely directed to his craft. "It wasn't just the time I needed to write," he says of his decision to leave publishing. "I had reached a point where I had to make a commitment. The book I was working on was an ambitious book, and I wasn't going to be able to pull it off unless I gave myself to it entirely."

Giving himself entirely to the craft of writing is the key notion for Doctorow. He believes that writers' lives are altogether too public, and that such publicity has a tendency to deflect attention from what is more crucial—the novels themselves. "The minute you ask a question about a writer's life, you're not dealing with the book," he says. "In one sense, we deify authors by wanting to know about them. In another, we learn to ignore them the same way. I'll tell you right now that more people in this country who think of themselves as cultured know that William Faulkner was a heavy drinker than have read *Light in August*."

He writes, he says, "because one likes to think one matters," and mattering, in his view, is something that American literature is not currently doing. In a recent address at the University of Michigan, he noted, "Today, fiction suffers from a reduced authority....It seems valid to say there is a timidity to serious fiction now...an exhaustion of hope that writing can change anything."

According to Doctorow, too many novelists have succumbed to self-absorption. Contemporary fiction is no longer risk-taking, a condition that shows itself, he says, both in the work of young writers—"a lot of which is very well written but single-voiced"—and in the literary lives of established writers, "who have become careerist-minded. They're independent entrepreneurs, what Lionel Trilling called 'writer figures.'"

Doctorow's concern with the purpose of fiction is addressed in his novella "Lives of the Poets." Its narrator, Jonathan, is a writer in his early 50's, Doctorow's age when he wrote it. He's separated from his wife and living in an apartment in Greenwich Village that has the same view as Doctorow's apartment there. A poet friend of his whom he's known since college has recently died of cancer under circumstances that parallel the demise of Doctorow's old classmate James Wright. He worries that his body is crumbling. He's having a crisis of confidence about his work. In short, Jonathan's life seems frail to him, meaningless, a sense that leads him, in the end, to accede to an act of political engagement, housing in his apartment a family of illegal aliens from El Salvador. But even this is a half-hearted move, and the reader is left with Jonathan's desperation.

What is fiction and what is not?

"For me," Doctorow says, "the novella is meaningful only in terms of Jonathan's typicality. He's a representative creative person. It's told in a way that's confessional, but he's not me. It's not my marriage. The apartment was never a sanctuary for anyone. The novella is an allegory for what I take to be the state of American writing today. What the hell are we doing? We've lost touch.

"Maybe I'll give something away here. I hate to put it so baldly on the table, but here it is. There's a character in the novella who is represented as Jonathan's girlfriend, his mistress, who is traveling around the world. She was with him once, but now she keeps going further and further away, and there's some question about whether she'll return. When the book was published, that created a lot of curiosity in people. They wanted to know who she was.

"Well," he says, and the emphasis is final, "she's the muse."

For Doctorow, a book begins with surprise. "I've

discovered that you cannot start a book with an intention, a calculation," he says. "You start writing before you know what you want to write or what it is you're doing." The catalyst, the spur itself, "could be anything." The germ of *Loon Lake*, he explains, was a road sign in the Adirondack Mountains for "Loon Lake." "It can be a phrase, an image, a sense of rhythm, the most intangible thing. Something just moves you, evokes feelings you don't even understand." He talks of a book's "yielding," giving itself up to be written, and to illustrate tells how *Ragtime* was born.

The novel begins this way: "In 1902 Father built a house at the crest of the Broadview Avenue hill in New Rochelle, New York." After having worked for several months on a novel based on the life of Dr. James Pike, the controversial Episcopalian bishop who disappeared in the Israeli desert in 1969, Doctorow found himself stuck and brooding, staring at the blank wall of his study in his winter home. "It was in the back of my mind to be starting with Pike's childhood," he says, "which would have put it at the turn of the century. Suddenly I made the connection: 'Hey! This house!' And all these images came to me. I was off on my book and it had nothing to do with James Pike. This is what I mean by material yielding. *Ragtime* is the book that yielded. You just punch around until something gives way. Then, if it keeps going, it's a book."

In World's Fair *Doctorow turns his historically inventive method on himself, drawing on material from his 1930s boyhood. He has called it "a portrait of the artist as a very young boy."*

During the going, Doctorow is methodical and diligent, "getting up for work in the morning like anybody else," writing for about six hours until midafternoon, shooting for a production of between 500 and 1000 words. He obeys rules: Ernest Hemingway's dictum about always stopping when you know what's coming next; until a draft is completed, never rewriting more than two pages earlier than his furthest progress; never rereading a working draft when he's tired. His drafts are typewritten, single-spaced, he says, "because then more of the landscape is visible at one time." And he has resisted purchasing a word processor, "because I like the physical aspect of writing. I like to tear up a piece of paper and throw it down and put a new piece of paper in the typewriter. When I've decided to change something, I like to retype the whole page."

Asked about research, Doctorow freely admits that his is spotty. He studies paintings and photographs in order to familiarize himself with the tenor of the times he's writing about. But he is wary of being trapped by facts. "There's a conflict in you," he says, "on the one hand, to know as much as you can; on the other, not to know too much, always to let the language do it for you. My idea of research is idiosyncratic and accidental, to find something to confirm your hunch, and to look for it until you need it."

History as he has presented it has drawn critics for its frivolousness. Particularly after *Ragtime*, he was accused of being a misinformer, willfully mendacious about sacred facts. Doctorow defends himself on two counts: "I think fiction intrudes on history, it always has. Nobody said anything about Napoleon being a character in *War and Peace*. Stephen Crane was never in the Civil War. Daniel Defoe wasn't there for the plague in London. The whole idea of objective historical reality is naïve.

"Historians know they're not objective. Why should fiction writers be denied the composition of history? Finally, what is fiction about?"

Perhaps the novel that most clearly reveals the creative process as Doctorow goes through it is *The Book of Daniel*, which Doctorow recalls now was his most problematic work. It focuses on a graduate student named Daniel Isaacson, the imagined son of less imagined parents, Paul and Rochelle Isaacson, whom Doctorow modeled on Julius and Ethel Rosenberg, the couple executed for conspiracy to commit treason during the McCarthy era. Set against the radical backdrop of the later 1960s, the novel traces Daniel's effort to purge his rage and confusion over his parents' deaths by plunging into the muddied history of their notorious case.

"The genesis of *The Book of Daniel*," Doctorow says, "was living in New York in the mid-1960s during the growing antiwar protest, the springing into being of the student counterculture, rock music, the rise of massive dissent, people dropping out, hippiedom. It was profound. It was radicalism, really. And I started thinking about how unprogrammatic it was. A lot of it was stupid and self-destructive, as with the drug stuff. And it was anti-intellectual.

"Anyway, there were demonstrations and wide civil disobedience. And I began to think about the previous spasm of radicalism, which was in the 1930s, and which was far different. It was programmatic, highly intellectual, theoretically connected to Marx and spearheaded by a very lively and, for a while, successfully growing Communist Party. It all came to an end right after World War II. So I thought I recognized the subject, and it was the idea of radicalism in America, and the function of the radical, which is sacrificial. The radical proposes ideas that cause destruction and later become orthodoxies.

"And then there popped into my mind that the key moment in all this was the Rosenberg trial. There was the nadir of radicalism in America. There was the moment in our history when everything went wrong.

That, to me, became the connecting link between the 1960s and the 1930s, and it became the focus of the book.

"What happened was—this is why it is so dangerous to start with an idea—I wrote 150 pages in a very straightforward, chronological simple past tense, omniscient narrator, and it bored me. I threw the 150 pages out.

"And I just started to type, very angry, full of despair and with an intense feeling of self-mockery. I started typing—whatever it was, I didn't know—and it turned out to be the first pages of *The Book of Daniel*. Somehow I had to go through some kind of transfiguration in order to find the voice for this book, and I couldn't do it until I hit some really deep despair. What I discovered was that I shouldn't write the book. Daniel should write the book."

In the opening pages of the novel, we find Daniel Isaacson writing his own story, maddened, like the man who created him, by his inability to make sense of his life. He is at a loss, writing just anything, and what is coming out of him is the most puerile thing, circumstantial self-definition: "This is a Thinline felt tip marker, black. This is Composition Notebook 79C made in U.S.A. by Long Island Paper Products, Inc. This is Daniel trying one of the dark coves of the Browsing Room. Books for browsing are on the shelves. I sit at a table with a floor lamp at my shoulder." The passage immediately communicates Daniel's burden of frustration, which the novel itself will go on to take for its focus.

"The only thing I thought I should research and be accurate about," Doctorow says, "was the law as it was used in the trial, the conspiracy statute, the conduct of the judge. That's all pretty accurate. All the rest of it is a meditation on the idea of what happens when all the antagonistic forces of society are directed to a point, to one individual. But it wasn't until I was able to find the voice and forget about the intention that I was able to write the book."

Doctorow smiles, satisfied. He's thought this

—*continued on page 64*

An excerpt from World's Fair

By E.L. Doctorow

One evening on the radio, the newscaster said that the largest airship ever built, the Hindenburg, was sailing from Germany to New York. Its route would bring it to the eastern seaboard over Long Island. It would head due west to a landing tower in New Jersey, which meant it would be visible over the city sometime in the afternoon. I might then be through with school. Yet I didn't dream I would see it, it did not occur to me that something on the news would be anything I would witness. I didn't think of the Bronx as a place where anything happened. The Bronx was a big place with miles of streets and six-story apartment houses attached one to another, up hills and down hills it went, every neighborhood had its school like my school, its movie, its streets of shops built into the sides of the apartment houses; it was tunneled with subways and bound together with trolley lines, and elevated lines; but for all of that, and for all us who lived here, myself included, it was not important. It was not famous. It was not central to the world. I thought the Hindenburg would more naturally fly over Manhattan, which was central to the world. I talked on the phone to my friend Arnold, who lived in the apartment house across the street. Would his mother let us go on the roof after school? I thought from Arnold's roof, six stories high, it might be possible to catch a glimpse of the Hindenburg way downtown, over Manhattan the next day, if it was flying at a high enough altitude.

But Arnold's mother said no one was allowed on the roof, so I gave up thinking about it. When I woke up the next morning I had all but forgotten about the Hindenburg. I went to school. It was a warm clear day. I walked home after school with my friend Meg. Then I played stoopball. I flipped bubble gum cards. The leaves were pale green on the hedges. Harry, the fruit and vegetable man, pulled up along the curb with his wagon. He called out to the windows. He tethered the reins to the big brake on the side of the wagon. Harry had a wrench for opening fire hydrants. He opened the fire hydrant in the middle of our block and filled a pail with water and put the pail on the street in front of his horse. The horse drank. The wooden poles that connected him to the wagon dipped to-

Illustration by V. Courtlandt Johnson

"the great silver Hindenburg...sailed incredibly over the housetops"

ward the ground. For good measure a leather harness was chained from its braces to the front of the wagon. The leather went around the horse's hocks and up over its back. The harness itself looked enormously heavy, like a big leather tire around its neck. The wagon had spoked wheels rimmed in steel. Leaf springs sprouted from the axles. All the fruits and greens were wet. Harry had sprayed them with a hose to make them clean and shining. I could smell the wet greens. He twisted off the green stalks of a bunch of carrots for a lady and fed the greens to his horse.

I went to the small park, the Oval in the middle of Mt. Eden Avenue. Here, as it happened, one had a clear view of a good deal of sky. I don't remember doing much of anything. Perhaps I bought a Bungalow Bar. Perhaps I was looking for Meg, who sometimes came to the Oval with her mother. Over the roofs of the private houses that bordered the north side of Mt. Eden Avenue, across the street from the park, the nose of the great silver Hindenburg appeared. My mouth dropped open. She sailed incredibly over the housetops, and came right toward me, just a few hundred feet in the air, and kept coming and kept coming and still no sight of the tail of her. She was tilted toward me as if she were an enormous animal leaping from the sky in monumental slow motion. Some sort of line lagged under her, like a halyard, under the cupola. Then, as I blinked she was visible in her entirety, tacking off some degrees to the east, and I saw her in all her silver-skinned length; the ribbed planes of her cylindrical balloon, thick in the middle, narrowed at each end, reflected the sunlight, flaring sunlight in striations, as if a deck of cards were being shuffled. I heard her now, the pro-

pellers alongside her cupola whirring like fans in the sky. She did not make the harsh raspy snarl of an airplane, but seemed to whisper. She was indeed a ship, a real ship in the sky, she moved like an airship. The enormity of her was out of scale with everything, out of scale with the houses and the cars on the street and the people now shouting and pointing and looking up; she was like a scoop of sky come down to earth, or a floating building, or a populated cloud. I could see little people in the cabin, they were looking out the window and I waved at them. The Hindenburg was headed over Claremont Park now, toward Morris Avenue. I was not supposed to go there alone. I looked both ways and ran across the street, and up the stone steps into the park. Cars had stopped in the street and drivers had gotten out to see. Everyone was looking at her. I ran through the park following the Hindenburg, she was going so slowly, so grandly, I felt I could keep up with her without trouble. I saw her through the trees. I saw the length of her passing through an opening of blue sky between the trees. I waved at the people in the cupola, which was the size of a railroad car. She was going over treetops. I ran into a grass meadow to get an unobstructed sight of her, but now I realized she was going faster than I thought, she seemed to drift in the wind, I heard a rising pitch of her engines, she was changing course, she was over the street, over the trees, and slipping behind the apartment-house roofs of Morris Avenue. I waved and called. I wanted her back. I had been laughing all the while, and now, as the tail of her disappeared, she was gulped up by the city as if she had been sucked out of the sky. I ran as far as the park wall, smiling and red-faced and breathless, unable to believe my good fortune that I had seen the mighty Hindenburg.

I hurried home to tell my mother. When Donald came home he said he had seen the ship too. He had still been in school for some special exam and had looked out the window and seen her. Everyone taking the test and the teacher, too, had run to the windows. "We should get a model of the Hindenburg," he said. "We should save up and get it."

And then in the evening she crashed. We did not hear the radio broadcast describing this, it was the hour for "The Answer Man" and "I Love a Mystery." But then a news bulletin came on. At the mooring tower in Lakehurst, New Jersey, she had caught fire. She collapsed, the steel twisting and curling up like paper. I could not imagine something the size of a flying ocean liner going up that way. Many people had died. They fell out of the sky in flames....

I did not think of the dead people, I thought only of the fall of the Hindenburg. My mother had said she was a German ship, sent over by Hitler for his own glory, and that if those people had to die she hoped they were Nazis. But none of that mattered to me. All I could think of was that the ship had fallen out of the sky. They were not supposed ever to touch land, they were tethered to tall towers, they were sky creatures; and this had fallen in flames to the ground. I could not get the picture of that out of my mind. In the Saturday cartoons, one, about Popeye, showed Popeye's ship sinking. He swam away and the ship stuck its nose up in the air and went straight down, like a knife, making a funny glub glub sound and sending up a stream of bubbles. But a real ship going down, I knew, was a terrible sight, like a giant animal fallen; she would lie on her side, or maybe turn upside down, and go under by degrees, faster and faster, creating a terrible whirlpool in the sea as she went. My father had told me he had once seen newsreels of an ocean liner foundered on a beach in Jersey. She lay in flames on her side. Even on water ships could burn. Everything around me was going up and down, up and down. Joe Louis hit Jim Braddock and Braddock went down. I had seen paintings in books of knights fallen from their horses, or horses fallen, and in "King Kong" there was the terrible shaking of the earth by the falling of the great dinosaurs in battle. And, of course, Kong himself had fallen. Just recently I had seen an old man in the street suddenly drop to his knees for no reason at all, and then topple to one side and sit on the sidewalk leaning back on one elbow, and I had found that terrifying. In bed, trying to sleep, I imagined my father stumbling and crashing to the ground, and I cried out. ♦

through before. "The image I like," he says, "is the one from cartoons. You see the artist's hand drawing a little mouse. It colors in the jacket and the pants, and then it gives him a little push, and the mouse scoots away down the road." He pantomimes with one of his hands a mouse disappearing behind his back, then produces the other one, the hand not designated as a mouse. "Well," he says "the hand is drawn, too."

World's Fair reconstructs the early life of Edgar Altschuler, now a middle-aged man attempting to put straight for himself the seminal events of his past. Edgar's chronologically ordered remembrance is the novel's central body, and it is concerned with fundamental things: first and foremost, a child's home and family; second, his initial venturings away from them, off his block, into the world. This is augmented by the commentary from Edgar's family members. We hear from several of them, the prominent exception being Edgar's father who at the time of the memoir has been dead for years. The father's voice is conspicuous by its absence; hence, he himself stands out as a character, the only character drawn entirely from the outside, by others.

The narrator's voice shares qualities with the author's spoken one. They have the same quietude, the same insistent, exploratory hue. Then, too, his memoir has technique, which is to mimic in its quality of observation and deduction the maturation of a child's mind. As the young Edgar's engagement with the world at large grows, his personal revelations are informed by it with increasing frequency. Thus, his parents' squabbling over practical matters is seen in clearer light as the boy begins to perceive the cruel economics of the Depression. The encroaching war in Europe touches him when a schoolmate of his brother's announces himself a Nazi. The explosion of the zeppelin Hindenburg in New Jersey teaches him tragedy; he'd seen it wafting over the Bronx the day before (see excerpt). By the time the novel ends, he's aware of life's enormous dimensions. Earnest, baffled and healthy, he's about to be spilled into his future.

"I wrote the book on the presumption—which I realized after I started—that a child's life is morally complex," Doctorow says, "and that a child is a perception machine. A child's job is to perceive, that's his business. So the novel is the sentimental education of a kid, a *bildungsroman*, if you will, that simply stops at the age of 10. And I had material at hand. I grew up in the Bronx. It is true that I have an older brother Donald, a mother named Rose. We actual Doctorows, including my late father, lived on Eastburn Avenue." His voice has taken on a mild edge. "These are all true. But the book is an invention. It's the illusion of a memoir."

As Doctorow speaks, it seems that what he's done in the novel is still becoming clear to him. Only just now is he realizing what his intentions have been all along, and he's sizing up his achievement against them as they come into focus. The sections of family commentary, for example, are written as if they have been elicited by questions and spoken aloud, and they stand as a kind of transcribed oral history in contrast to Edgar's crafted one. "I like the idea of composing oral history," Doctorow says. "Writing the way people speak. Behind it is the larger idea of trying to break down the wall between the real and the written.

"So what I wanted to do was write something with narrative advance that did not depend on plot, that is to say, that seemed to be life, not a story. To break down the distinction between formal fiction and the actual, palpable sense of life as it is lived, the way time passes, the way things are chronically dramatic without ever coming to crisis. And that is the strongest impulse in 20th-century literature, to assault fiction, assault the forms, destroy it so it can rise again. You let go of the tropes one by one. You get rid of the lights, you get rid of the music, you forego the drum roll and finally you do the high-wire act without the wire."

The last metaphor is coyly chosen, for it comes directly from a scene midway through *World's Fair*. In it, Edgar recalls being taken by his mother to the circus, where he was fascinated most of all by "one wistful clown who climbed the high wire after the experts were done, and scared himself and us with his uproariously funny and incredibly maladroit moves up there." When the clown doffed his costume and revealed himself to be, after all, the star of the high-wire act, young Edgar was significantly affected: "I took profound instruction from this hoary circus routine....There was art in the thing, the power of illusion, the mightier power of the reality behind it. What was first true was then false, a man was born from himself."

Thus is the artist in Edgar born, and the scene supplies an answer to the overriding concern of the narrator in the novel: how did I become what I've become? How did I get here from there?

Edgar Doctorow answers those questions about himself. "The presumption of writing," he says, "is that you can speak for other people, that you can live lives through your work that you have not lived and that you can do that adequately and justly. Writing is an exploration. You start from nothing and learn as you go. If you do it right, you're coming up out of yourself in a way that's not entirely governable by your intellect. That's why the most important lesson I've learned is that planning to write is not writing. Outlining a book is not writing. Researching is not writing. Talking to people about what you're doing, none of that is writing. Writing is writing." ♦

THEORIES OF INTELLIGENCE

By Kevin McKean
From DISCOVER

Scientists have long sought ways to define and measure human intelligence. And while theories of intelligence have grown more sophisticated since the 1800s when some believed mental abilities were determined by the size of a person's head, researchers still do not agree about certain fundamental principles of human thought. They therefore continue to debate such basic questions as whether heredity or the environment is more important in forming intelligence.

Kevin McKean is a senior editor of the science magazine Discover.

On the weekend of July Fourth, 1942, when psychologist Seymour Sarason reported for work at a Connecticut training school for the mentally retarded, the place was in an uproar: one of the students had escaped. The students would occasionally evade supervision long enough to slip into the woods and strike out for home, obliging the school to send out a search party.

Sarason paid little attention to the escapes at first. But as the months wore on, he noticed a curious thing. He was giving the students the Porteus Mazes Test, an intelligence quotient (IQ) exam often used for retarded people since it required no language, simply challenging them to trace their way out of printed mazes. To his astonishment, many of the escapees couldn't work so much as the first and simplest puzzle. "These kids couldn't get from point A to point B on paper, so how did they plan a successful runaway?" says Sarason, now a professor at Yale University. "That was when I realized that what these kids could plan on their own was in no way reflected by how they did on tests."

The lesson that there's more to intelligence than IQ is one that most people learn the hard way at one time or another. Everyone has known people with low IQs who get along in the world famously, and others with high IQs who never amount to much. Indeed, the venerable intelligence quotient has such an imperfect relationship to intelligence that many psychologists have dropped the term from their lexicon.

Nevertheless, the subject of intelligence—and how to measure it—continues to engross psychologists and laymen, probably because intelligence is the principal ability that separates humans from other creatures.

Defenders of IQ, like psychologist Hans Eysenck of the University of London, point to its eight-decade record of service: "There's an indisputable body of scientific evidence showing that IQ tests do reflect actual cognitive abilities." Says psychologist Earl Hunt of the University of Washington, "The intelligence test is probably psychology's biggest technological contribution." Critics counter that IQ's many flaws render it useless. "The assumption that intelligence can be measured as a single number is just a 20th-century version of craniometry," says biologist and author Stephen Jay Gould, referring to the 19th-century "science" that claimed a person's intelligence could be determined by measuring the head. Norman Geschwind, the noted Harvard neurologist, was fond of pointing out that some people with massive frontal lobe brain damage, whose personality, motivation and insight had been irreversibly damaged, could still attain near-genius IQ scores—a fact, he said, that showed the bankruptcy of IQ.

IQ fell on hard times through a combination of bad luck and misuse. Its bad luck was to have been invented at the turn of the century, when racial and nationalistic prejudices were more prevalent than they are today. Some of the American creators of IQ misused it as a justification for repressive measures against foreigners, blacks and "undesirables." And scientists are still hotly debating whether the differences in IQ among various races and nationalities mean anything.

Psychologist Robert Sternberg of Yale and other young theoreticians are striving to render IQ obsolete by forging new and more realistic definitions of what it means to be intelligent. It would be wrong to characterize this group as a "school";

their ideas are too diverse. But the theories of these young scientists share an almost humanistic perspective. Their creators, mindful of the pitfalls of IQ, borrow from cognitive psychology and neuroscience to define smartness as a complex web of abilities; they construct new intelligence exams using realistic problems; they explicitly allow for national and cultural differences in the definition of intelligence; they argue that smartness results from an interaction of genes and environment, making the bitter "nature-nurture" argument pointless; and, contending that much of intelligence consists of learned skills, many of the theorists are devising programs to teach it.

No one expects the new theories to end complaints about intelligence testing, or to settle once and for all what that elusive quality we call *intelligence* really is. Yet they've already begun to change the scientific establishment's view of intelligence.

The modern conception of intelligence has its roots around the turn of the century, when a number of scientists sought definitions for the term. French psychologist Alfred Binet in 1905 published the first modern IQ-like test to help the government identify schoolchildren in need of remedial education.

Binet's test was taken up enthusiastically by American psychologists, chief among them Lewis Terman of Stanford University. In 1916 Terman produced an expanded version designed for subjects of any age. The Stanford-Binet test consisted of problems that would become familiar to modern IQ test-takers: vocabulary questions, tests of reasoning and logic, questions that involved completing a series of numbers. While Binet's scale had yielded a score expressed in terms of "mental age," Terman called his score an intelligence quotient—calculated by dividing a subject's mental age by his physical age and multiplying by 100. Thus a six-year-old performing at the six-year-old level would have an IQ of 100; if he performed at the nine-year-old level, his IQ would be 150. And while Binet meant his test simply as an educational tool, Terman had broad ambitions for widespread testing of adults.

Terman's dream of mass testing was quickly realized. A Harvard psychologist named Robert Yerkes persuaded the U.S. Army to examine some 1.75 million recruits during World War I. Whether because of poor test conditions—many test halls were so crowded that recruits seated in the back could scarcely hear the instructions—or the soldiers' lack of ability, the average able-bodied white recruit scored a mental age of about 13, a little smarter than "moron." The test's authors were dismayed by the low scores, but encouraged that the racial breakdown suited the prejudices of the day.

With the Army exams as impetus, intelligence testing took off after World War I. Brigham and others devised the first aptitude tests for college applicants; Terman issued a revision of the Stanford-Binet in 1937; in the 1940s and 1950s, psychologist David Wechsler of Bellevue Psychiatric Hospital in New York City devised intelligence tests for adults and children that today rival the Stanford-Binet in popularity.

The modern versions of these tests are fairly straightforward. The Wechsler adult exam, for example, is given in a personal interview. It consists of 11 subsections that ask examinees to define words, solve math problems, recall strings of digits in forward or reverse order and arrange blocks according to a specified design. IQ tests are used to identify children who are slow or speedy learners, to evaluate job candidates, to aid psychological or psychiatric exams and, when coupled with other tests that assess interests or experience, to help draw a picture of a person's mental strengths and weaknesses.

Psychologist Howard Gardner of Harvard has developed a measure of intelligence that differs sharply from these traditional tests. He began his career working with gifted children in Project Zero, a task group trying to understand artistic creativity, and also with brain-damaged patients at Boston University and a Boston hospital.

This dual exposure to talented children and grievously ill adults helped mold Gardner's eclectic view of the mind. He and psychologist David Feldman of Tufts University were impressed by the young age at which some children manifest special abilities. At the hospital, Gardner was struck also by the cruel and exquisite selectivity with which disease and injury can damage the mind. Patients with a left-hemisphere lesion might lose the power to speak but still be able to sing the lyrics to songs because the musical right hemisphere was intact. Right-hemisphere patients might read flawlessly but be unable to interpret what they read.

These experiences persuaded Gardner that intelligence, far from being a unitary power of mind, consists of a set of mental abilities that not only manifest themselves independently, but probably spring from different areas of the brain. In his 1983 book, *Frames of Mind*, he hypothesizes that there are at least seven broad categories of intelligence. Three are conventional: verbal, mathematical and spatial. But the other four—musical ability, bodily skills, adroitness in dealing with others and self-knowledge—have sparked controversy because they're far afield of what's usually called intelligence.

In defense of the label *intelligence*, Gardner argues that each of the seven abilities can be destroyed by particular brain damage, each shows up in highlighted form in the talents of gifted people or *idiots savants*, and each involves unique cognitive skills. "Take an athlete who has a sixth sense of where to throw a basketball," says Gardner. "He has to know where his teammates and opponents are, judge where they are likely to go and use analysis, inference, planning and problem solving to decide what to do. It's clear that, even in the bodily movements alone, there's a reasoning process."

Young theoreticians are forging new and more realistic definitions of what it means to be intelligent, and they've already begun to change the scientific establishment's views.

Gardner's theory makes room not only for Western definitions of intelligence, but also for those of other cultures. Intelligence among the Iatmul people of Papua New Guinea, for example, consists of the ability to remember the names of some 10,000 to 20,000 clans. Because he emphasizes cultural variation, Gardner refuses to define a single IQ-like scale. "When you measure people on only one measure, you cheat them out of recognition for other things," he says.

Robert Sternberg is at once very similar to and strikingly different from Gardner. Both are children of immigrant Jews who fled the Nazis. Both graduated from college *summa cum laude*—Gardner from Harvard, Sternberg from Yale—and returned to their alma maters to teach. And both aim to broaden the definition of intelligence.

There the similarities end. Gardner prides himself on being an outsider. Sternberg is closer to the psychometric (mental testing) mainstream. He wants to build upon earlier theories, not abandon them. The two are vigorous professional rivals. "Deep down," says Gardner, "Sternberg still believes there *is* such a thing as a single intelligence, and if we just knew enough, we could put our finger on it." Sternberg replies: "The difference between Gardner and me is that I don't believe in making overly broad theories that can't be verified. To name six or seven intelligences and call that a theory seems a little thin."

Sternberg's "triarchic theory," laid out in *Beyond IQ* (1985), breaks intelligence into three parts. The first deals with the mental mechanisms people use to plan and carry out tasks, with special emphasis on the skills by which people plan and evaluate problem solving. To Sternberg, planning is often more important than sheer mental speed: good test-takers, for instance, spend more time than poor ones on studying and digesting questions before trying to work them out.

Sternberg's studies also highlight the role of planning in reading comprehension, often a part of standard IQ tests. He and a colleague, Richard Wagner, asked volunteers to read four passages, one for gist only, one for main ideas, one to learn details and one for analysis. The best readers, as measured by a standard reading test, devoted most of their time to the passages that had to be read with the greatest care, whereas poorer readers spent the same amount of time on all four selections.

The triarchic theory's second part deals with the effect of experience: the intelligent person not only solves new problems quickly, Sternberg argues, but also learns to solve familiar problems by rote in order to free the mind for other work.

The third part, which focuses on practical intelligence, asserts that common sense depends largely on what Sternberg calls tacit knowledge—which might loosely be defined as all the extremely important things they never teach you in school. He says success in life often depends more on tacit knowledge than on explicit information.

Sternberg has devised a number of tests of practical intelligence. Some pose typical quandaries in business, politics or science. Others measure sensitivity to nonverbal cues: one type of question presents a picture of two people and asks which is the boss and which is the employee. The aim of such questions is not to train people to spot bigwigs, but to make intelligence tests more realistic. "Standard IQ tests are fairly good for predicting how people will do in school, but they have a very low correlation with job performance," says Sternberg. His most recent book, *Intelligence Applied*, is a program for teaching intelligence.

Psychologist Jon Baron, of the University of Pennsylvania, traces his interest in teaching intelligence to the concern he felt over the deep divisions in American society opened by the Vietnam War. What bothered Baron, then a graduate student, was not so much that people disagreed about the war, but that, despite the ambiguity of the issues in Vietnam, each side held its opinions so vehemently.

Baron believes these powerful emotional disagreements result from a subtle irrationality in human thinking. He cites a study done by psychologists at Stanford. The researchers chose people who were either for or against the death penalty, and then gave them two fake but seemingly authoritative studies, one presenting evidence that capital punishment deterred crime, the other that it didn't. "At the end," says Baron, "the two groups were actually farther apart in their opinions. That's got to be irrational. If you feel only moderately convinced of something, and then you're presented with conflicting evidence, you ought to be less sure you're right, not more."

Why do people act like that? Baron's answer is shaped by his work with learning-disabled young-

sters. Many of these kids, he says, show the same patterns of irrationality as ordinary people, but in exaggerated form. "They're impulsive; they blurt out answers as if all that mattered was being right," says Baron. "And they're rigid; they'll do a math problem wrong, and when the teacher points it out, they say, 'No, I'm right. You're wrong.' "

In *Rationality and Intelligence* (1985), he defines the essence of intelligence as the art of rational thinking—a talent that's learned, not inborn. "Most people are poor thinkers because they don't think long enough about the important things, they don't search for more evidence or they rely on some 'authority' to tell them what's right," Baron says. He and graduate student Susan Nolen-Hoeksema have designed a program for teaching rational thinking to depressed patients, who tend to view the world in black-or-white dichotomies and then place themselves on the dark side of the fence. Among the suggestions:

- Ask yourself if you're avoiding thinking.
- Actively look for evidence on the opposite side.
- Never be certain that an idea or plan can't be improved.
- Ask yourself why you want something to be true or false.
- Know why you believe the things you believe, and why you make the decisions you make.
- Use intuitions as evidence, not to form conclusions.
- Never regard a decision or belief as final.
- Don't be afraid to have been wrong.

Baron believes these rules can help anyone, not just depressives. "Teaching people to think rationally will make them more intelligent—and in ways that matter," he says.

To the controversial educator Arthur Jensen, programs that aim to raise intelligence, like Sternberg's and Baron's, are just wishful thinking. He believes that it's genes, not culture or environment, that do the most to determine intelligence. Specifically, Jensen argues that intelligence is a physical property of the brain; that IQ is a pretty fair measure of that property; that braininess is mostly inherited; that, as a result, there are sharp biological limits set at birth on an individual's intellectual capacity; and that there may also be clear-cut differences in average intellectual potential among races and nationalities.

It's not a position that has won many friends. When Jensen first suggested, in a 1969 article in the *Harvard Educational Review*, that lower intelligence might account for the fact that blacks don't do as well as whites in American schools, friendly critics called him naïve and hostile ones a racist. Pickets appeared at his University of California, Berkeley, office; he had to move classes to a new location each day to avoid demonstrations.

Jensen's research has made him the biggest thorn in the side of Gardner, Sternberg and other researchers who would like to broaden the meaning of intelligence. In intelligence testing Jensen-style, the examinee sits before a control panel featuring an array of buttons. The subject holds a finger on the center button until one of the eight surrounding buttons lights up and then jabs a finger at the lighted button as quickly as possible to turn it off. This procedure is repeated with slight variations about 60 times. Although this apparently mindless exercise doesn't seem to involve much intelligence, performance on a battery of such tasks correlates with performance on standard IQ exams—which implies that Jensen's button-pushing device is nearly as good at measuring IQ as the tests themselves.

Critics say this only confirms the meaninglessness of IQ, but Jensen sees more fundamental forces at work—in particular, a force that British psychologist Charles Spearman called *g*. Spearman observed that there was a high degree of correlation among a wide variety of mental tests, even those that seemed wildly dissimilar. In a classic paper published in 1904, he argued that this correlation reflected a *general* mental ability—hence *g*—involved in all cognitive work, and presented a mathematical method called factor analysis for determining the extent to which *g* was involved in any given task.

Jensen has analyzed a number of standard IQ tests and concluded that those showing the largest difference between the average scores of blacks and whites were also the ones with the highest *g*-loading. The gap between the races was small—only about 15 points, less than the average variation between children in a family. Nevertheless, Jensen argues that a small average difference could markedly affect the black-white ratio at the highest and lowest levels.

In Jensen's view, as much as 70 percent of the differences in intelligence may be genetic. "There's no doubt that you could breed for intelligence in humans the way you breed for milk in cows or eggs in chickens," he says.

Jensen's critics regard this kind of talk as meaningless. "To say that because black children *don't* do well on IQ tests they *can't* do well is extraordinarily simple-minded," says Sandra Scarr, chairman of the psychology department at the University of Virginia. "Our studies show that blacks reared by whites have an IQ of about 110, the same as white adoptees raised in the same environment." And Berkeley anthropologist John Ogbu, a Nigerian, points to studies showing that schoolchildren in developing countries who attend Western-style schools score as high as Westerners on IQ tests.

Ogbu and others add that tests designed for one culture are notoriously faulty when applied to another. A classic example is the study by psychologist Joseph Glick of Liberia's Kpelle tribesmen. Glick, of the City University of New York, asked the tribesmen to sort a series of objects in sensible order. To his consternation, they insisted on grouping them by function—placing a potato with

Intelligence is meaningless when separated from its cultural roots. Different kinds of intelligence have been valued at different times in history.

a hoe, for example—rather than by taxonomy, which would place the potato with other foods. By Western standards, it was an inferior style of sorting. But when Glick demonstrated the "right" answer, one of the tribesmen remarked that only a stupid person would sort things that way. Thereafter, when Glick asked tribesmen to sort the items the way a "stupid" person would, they sorted them taxonomically without difficulty.

Stephen Jay Gould maintains that even if intelligence were 70 percent heritable, which he doubts, it wouldn't prove that racial or cultural differences were genetic. Imagine, he says, a group of malnourished Africans whose average height is a few centimeters less than that of North Americans. Height is highly heritable—about 95 percent. But that fact gives no assurance that these Africans would stay shorter than the North Americans if they were properly fed. The average height in Japan has gone up several centimeters since World War II, but no one argues that the Japanese gene pool has changed. As for Spearman's *g*, Gould believes it has no real existence but is simply a mathematical artifact expressing subtle but pervasive advantages of schooling, parental attention, expectations and motivation.

Critics fear that Jensen's ideas will do psychological damage to the supposedly inferior groups, and could even be used to justify social or political oppression. His defenders counter that this is no excuse for limiting scientific inquiry.

Moreover, Gardner and the other new theorists believe the whole nature-nurture debate is a red herring. "Suppose we improved our social and educational systems so much that all schools and homes were absolutely equal," says Sternberg. "Then, regardless of how genetically influenced intelligence was, the heritability would go up to 100 percent—since there would be no other differences besides genes. That shows how meaningless heritability is."

Whether or not heritability is meaningless, it's certainly true that intelligence is sometimes biologically influenced, as the work of psychologist Julian Stanley and sociologist Camilla Benbow dramatically shows. Since 1971, Stanley, of Johns Hopkins University, has collected data on children under the age of 13 who score exceptionally high on the math part of American college-entrance tests.

The startling discovery of Stanley and Benbow, who joined him in 1977, is that among the 292 high scorers on the math test, boys outnumber girls about 12 to one. The effect seems limited to math, since the sex ratio is roughly 50-50 among children who score high on similar verbal tests. "We were shocked at first," says Stanley. "We knew that by age 18 when most kids take the tests, boys do better than girls. But by that age, boys have usually taken a lot more math. We assumed that at age 12, when both sexes have taken the same amount of math, there would be little or no difference." And questionnaires aimed at finding a cultural explanation failed: boys and girls in the screening program answered similarly when asked whether they studied math, enjoyed math or felt math was important to their careers.

Not all scientists have accepted the implication that bright 13-year-old boys may be innately better at math than girls. The journal *Science*, in which the report appeared, ran letters of rebuttal arguing that Benbow and Stanley had overlooked important social factors—such as the possibility that girls might not even enter a "talent search" if they thought it would make them appear brainy or unattractive to boys.

The data of Stanley and Benbow also lend curious support to an old image of bright children. The high scorers are about four times as likely as other children the same age to be myopic, and twice as likely to have allergies (or other auto-immune disorders) and to be left-handed. This collection of traits is not as whimsical as it sounds. Norman Geschwind, who died in 1984, believed that hormonal influences in the womb often caused male fetuses to experience greater development of their brains' right hemispheres at the expense of the left. This, he argued, could account for the fact that males are more likely to be left-handed (the right hemisphere controls the left side of the body), and also for the fact that left-handers are somewhat more prone to auto-immune disorders and reading disabilities.

The fact that the Johns Hopkins children are anything but reading-disabled doesn't cut them out of this picture. Benbow notes that mathematical reasoning seems associated with the right hemisphere. Thus, if Geschwind's theory is correct, a right-hemisphere hormonal boost may be a double-edged sword, encouraging mathematical genius in some, sending brain development awry in others.

What if today's gifted child had been born in classi-

cal times? Would he have upstaged Pythagoras? Stanley thinks not. "He would've manifested his ability early and become a great surveyor or engineer," Stanley says. "But remember, if he'd been born in Rome in the year zero, he wouldn't even have had a zero to work with!" It was the decimal system, derived from the Arabs and Hindus, that introduced the mathematically important zero; the citizens of Imperial Rome were hampered by their cumbersome—and zero-less—numeral system.

Stanley's point is that intelligence is meaningless when separated from its cultural roots. That's why Sir Isaac Newton, for all his genius, wasn't being unduly modest when he said he stood on the shoulders of giants. Thanks to cultural storage and transmission of knowledge, every person stands on the shoulders of countless giants to whom he owes concepts, like inertia, that are so familiar they seem intuitive, but which were in fact brilliant insights.

That fact makes it extremely difficult to say whether intelligence is increasing with time. If one considers cultural advances, the answer is certainly yes: there's little doubt that, at least in scientific and technical matters, today's culture is vastly advanced over that of centuries or even decades ago.

Gardner adds that different kinds of intelligence have been valued at different times in history. In the preliterate era, the mark of wisdom was a prodigious verbal memory. Today, that sort of skill is more associated with *idiots savants*. And, while one can only speculate how modern geniuses would fare were they transported to the past, there have been examples of the reverse situation, in which a "primitive" scientist has been thrust into the present. One such case was that of Srinivasa Ramanujan, the renowned Indian mathematician, who was brought up in an isolated village. Ramanujan had an extraordinary talent for seeing the hidden properties of numbers: once, when a friend visited him as he lay ill in England, Ramanujan observed that the number of the visitor's cab—1729—was the smallest that could be expressed as the sum of two cubes in two different ways. "This was an amazingly rapid mathematical insight," says Gardner, "but not [one] that was at a premium, or even especially appreciated, in 20th-century Britain. Beyond natural gifts, aspiring mathematicians need to be in the right place at the proper time."

Just as each type of intelligence has its time, so does each stage of its development in individuals. This was the insight of the renowned Swiss psychologist Jean Piaget, who charted the intellectual discoveries that make up the mental growth of children. For Piaget, who died in 1980, the last stage of mental development was reached during adolescence with the attainment of what he called "formal operations"—more or less the ability to pose and solve abstract logical problems. But some of Piaget's intellectual descendants think mental development continues in adulthood, and a number of them have devised tests to try to prove it.

Harvard psychologist Michael Lamport Commons, for example, charts three stages of mental development beyond formal operations, each involving the ability to reason abstractly about the achievements of the previous stage. His colleague Lawrence Kohlberg has devised tests of an adult's ethical development. To assess the relationship of such measures to IQ, Commons recently gave a battery of his tests to 150 volunteers from Mensa—the worldwide organization of people with high IQs. The Mensa group didn't score any better than adults of average intelligence. On the contrary, those who claimed to have the highest IQs tended to have lower degrees of ethical judgment on Kohlberg's scale. Says Commons, "The notion that geniuses will solve our problems is a hoax."

Although IQ, by some measures, declines three to four points per decade after age 20, University of Denver psychologist John Horn finds that other aspects of intellectual performance actually increase with time. Horn's chart of mental abilities over a lifetime shows most trailing dismally downward with age. But at least two of the lines climb upward. One represents an ability that Horn and others have called "crystallized intelligence," amounting to the sum of a person's knowledge and experience. The other is what Horn calls long-term storage and retrieval, that is, the ability to call to mind experiences of long ago. Taken together, Horn argues, these two might well be called wisdom.

Perhaps the most troublesome puzzle of intelligence is why some obviously intelligent people make such messes of their lives. Sternberg thinks some common problems lie outside the realm of intelligence. He has drawn up a list of factors that undermine intelligent performance—lack of motivation, inability to persevere, uncontrolled impulsiveness and failure to know one's own limitations. "You have to concentrate on those things you're best at," Sternberg says. "The trick of intelligence is playing to your strengths."

Gardner sees our inability to comprehend why the intelligent often live unintelligently as a consequence of the nature of intelligence testing. Most intelligence tests, even newer ones, last no more than a few hours, and it may simply be impossible to draw a realistic picture of a human being in that time. Gardner contends that testers should eliminate the short-answer quiz in favor of a system that would assign grades, or even intelligence scores, on the basis of performance on long-term projects. "There are too many people who are brilliant at short-answer quizzes and yet failures at life for that talent to be important," Gardner says. "Creative people look beyond the superficial. It's the ones who don't accept the 'right' answer who come up with the really important ideas." ♦

REVIEWS

POLITICS

Republicans and Democrats

Xandra Kayden and Eddie Mahe Jr., *The Party Goes On: The Persistence of the Two-Party System in the United States*. Basic Books. 256 pp.

By Everett Carll Ladd
From THE CHRISTIAN SCIENCE MONITOR

Some books of political analysis and commentary are impressive because they break new ground; others because they summarize well-known developments not previously discussed in an integrated fashion. *The Party Goes On: The Persistence of the Two-Party System in the United States*, by Xandra Kayden and Eddie Mahe Jr., makes the latter sort of contribution.

The last quarter century has seen extraordinary change in the American political parties. Indeed, so much has been happening both to voter alignments and party organizations that it is mystifying one can still encounter references to "the New Deal party system" that are not purely historical. The partisan arrangements of Franklin D. Roosevelt's time are as different from the current American party system as are those when Ulysses S. Grant occupied the White House.

In the case of almost any institution rocked by sweeping change, it is useful occasionally to stand back and take stock of what has transpired. Kayden, a political scientist at the Harvard University Institute of Politics, and Mahe, a Republican Party strategist and former deputy chairman of the Republican National Committee, have done this for the two major U.S. political parties, concentrating on organizational experience. They chronicle the blows both parties endured in the 1960s and '70s, some self-inflicted. Responding to new activists and impulses that eventually were to strengthen them, the Republicans misread the national mood in 1964 and painted themselves a party of racial reaction. Just when they were climbing out of this trough, Watergate engulfed them. In responding to new (or underrepresented) groups and demands, the Democrats likewise stumbled during the 1970s. In the name of "reform" they acted as though their presidential nominating procedures were designed for abstract *representation*—rather than for waging and winning elections as prelude to successful *governance*. They belittled the ongoing role of the institutional party and its leadership.

Broad social forces were at the same time disrupting traditional party functions and responsibilities. Today's highly educated electorate feels less need of parties for political cues and direction than did electorates of times past. Communications functions that belonged historically to the parties have been taken over by the mass media. Social-welfare functions have been assumed by government itself. Throughout the 19th and early 20th centuries, the parties organized successfully on a tightly knit geographic basis: ward or precinct committees were the soul of the party organization, their vitality reflecting the central place of the party and of neighborhood life. But by the 1960s the United States was well on its way to building new sorts of communities—organized around the workplace or profession rather than the neighborhood—and traditional party organization could not survive the eclipse of the traditional community organization on which it had been based.

In the early to mid-1970s, Kayden and Mahe remind us, all of these disparate developments had come together. Inevitably, both the Republicans and Democrats were sent reeling. Political analyses of the 1970s—which include journalist David Broder's *The Party's Over*, the title played upon in *The Party Goes On*—stressed the parties' dire straits. Contrary to the suggestion Kayden and Mahe repeatedly make, the earlier commentary never suggested that the parties were dead. The "persistence of the two-party system" was not at issue—but rather the capacity of that system to perform satisfactorily.

The parties' problems deserved the emphasis given them. Still, political pundits erred in not sorting out short-term elements from those likely to persist. Watergate was a terrible burden for the Republicans in the mid-

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1970s, but there was really never a chance that it would be a lasting burden. Some historic party functions were diminished by social change, but the basic need for parties in organizing the electorate remained as vital as ever.

The Party Goes On is at its best in reviewing how the Republican Party pioneered in harnessing new technology to the new forms of association and communication. Its national and congressional campaign committees are more active, vital and successful than ever before.

Some of the problems the parties confronted in the 1970s have simply disappeared; others have been overcome through successful adaptation. Many remain as challenging as ever, though, and some even are intensifying. For example, Christopher J. Matthews, assistant to House Speaker Thomas P. O'Neill Jr., observed recently that

> at a dizzying pace the TV news networks have absorbed many of the democratic functions traditionally held by political parties: the elevation of key public issues, the promotion of new leaders, the division of executive and legislative authority, and the constitution of political opposition. Today, network executives make these decisions...on a rational mix of "news judgment" and commercial savvy. For better or worse, the nation's dogged two-party system has been challenged by a three-network system that runs at much higher voltage and delivers at a speed approaching light itself.

America's political parties are somewhere in the middle of their journey, not near its end. Kayden and Mahe have nicely chronicled the latest wanderings and reminded us of the travelers' resourcefulness. However, the parties, the only primary representative institutions in American government not expressly recognized in the Constitution, are still vulnerable institutions. Amid the revivals of the 1980s, their resources remain modest when set against the expectations for leadership Americans bring to them. ♦

CULTURE

Dance and Romance

John Mueller, *Astaire Dancing: The Musical Films*. Alfred A. Knopf. 440 pp.

By Barry Gewen
From The New Leader

John Mueller, a professor of film studies at the University of Rochester, has produced a book the world genuinely needed. *Astaire Dancing: The Musical Films* is a detailed account of every dance sequence ever filmed by the Hollywood star the author calls "one of the master artists of the century." Beautifully designed and lavishly illustrated with photographs, publicity stills and over 2000 frame enlargements, it proceeds movie by movie, dance by dance, through 31 films—from *Dancing Lady* in 1933 to *Finian's Rainbow* in 1968. By Mueller's reckoning, of the 212 musical numbers covered, at least 75 are masterpieces or near-masterpieces.

While the dance analyses constitute the bulk of the book, the most important section is the introduction, where Mueller makes his case for Astaire's position in cultural history and looks at the man's overall achievement. That case can be summed up by a story Mueller tells. Once, when the New York City Ballet Company was touring the Soviet Union, choreographer Jerome Robbins, in response to a reporter's question, said Astaire was the dancer who had most influenced him. The newspaperman looked shocked, and Robbins asked why. "Well," came the reply, "Mr. Balanchine just said the same thing." If the praise of one's most eminent peers is a sign of excellence, then Astaire is nonpareil. The great choreographer Balanchine, in another context, equated him with Bach. The comparison is not farfetched, for, like the German master, Astaire has been expert in every phase of his art.

One of the joys of this book is learning about his incredible competence. Besides performing in an amalgam of styles from tap to ballet, Astaire did

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Fred Astaire and Ginger Rogers in *Top Hat*, 1

American Film Institute

his own choreography, dubbed the sound tracks himself, helped arrange the music, participated in auditions and script conferences, even got involved in marketing his films. He had complete control over the shooting of his numbers, and his editing revolutionized the movie musical. His fellow film star Gene Kelly has said: "The history of dance on film begins with Astaire."

Yet Astaire is astoundingly modest, almost insecure, about his accomplishments. He is a nice guy who finished first. When people compliment him, he thinks they are merely being kind, and he occasionally spoke about giving up dance for something he could do well. Perhaps that lack of confidence was necessary to drive him. He is a legendary perfectionist who would spend weeks getting a routine just right. His insouciant movie persona was the result of a huge amount of very hard work.

In the end, of course, Astaire's contribution rests with his dancing, most notably in the nine films he made with Ginger Rogers in the 1930s. The *New Yorker* critic Arlene Croce has already examined these pictures in her own sprightly *The Fred Astaire and Ginger Rogers Book*, and Mueller largely shares her assessment, building upon it and correcting occasional factual errors. Both writers stress the drama of the couple's numbers. The dances are not abstract or escapist; they have a definite subject—romance. Rogers was Astaire's best partner, Mueller writes, because she "conveyed the impression that dancing with him is the most thrilling experience possible." In an especially apt formulation, Croce calls the nine films a single epic featuring two characters named Fred and Ginger.

These are significant points, I believe, for they explain not only the pair's enduring popularity but also the nature of Astaire's art: he overcame the artificiality of the dance, making it "real" for a modern audience by using movement to display what was possible between a man and a woman in love. He actualized the metaphor *walking on air*. If everyone, Mueller included, perceives a falling-off in the years after Rogers, it is because Astaire lost his subject. His dances became exercises in technique, and gimmicky. Mueller is enough of an enthusiast for Astaire's complete *oeuvre* to cause us to want to see the later pictures, yet nothing will change the fact that the films with Rogers are the ones that assure Astaire his place in history. Half a century after their release they are vitally, emotionally alive—and will undoubtedly continue to live for as long as people believe in the idea of romantic love.

Admittedly, it is still rather odd to think of Astaire as a major 20th-century artist, and Mueller is obviously self-conscious in asserting his judgments. The term *genius* is normally reserved for the titans of the avant-garde—Stravinsky, Joyce, Picasso—figures with whom Astaire has little or nothing in common. He violates practically every standard associated with modern art: he is enormously popular, and was interested in pleasing an audience (without condescending to it); his work is neither abstract nor formally innovative. To label him a genius, therefore, is to perform an act of critical revisionism.

Thirty years ago, when a modernist perspective dominated criticism, and a sniffy disdain was considered the only proper stance toward popular culture or anything that smacked of entertainment, few would have dared to number Astaire among the century's giants. Tastes began to change in the 1960s, and for some time now writers have been describing a profound alteration in our sensibility, brought on by the patent exhaustion of the avant-garde. One happy effect of this change is that work no longer tends to be dismissed merely because of popularity. We have learned that lasting and significant art has been created out front, under the spotlight as it were, by people like John Ford, Howard Hawks, Walt Disney, Louis Armstrong, George Gershwin, Bob Dylan. Astaire belongs in the company of these outstanding American creators. If, like Mueller, we remain slightly tentative in our claims for him, it is because the influence of modernism has not fully receded. ♦

RELIGION

Preacher of Paradox

Richard Wightman Fox, *Reinhold Niebuhr: A Biography*. Pantheon Books. 340 pp.

By William E. Leuchtenburg
From The Atlantic

Richard Wightman Fox expresses the theme of his new biography of the late theologian Reinhold Niebuhr when he notes that "the ironic essence of American culture was its curious compound of piety and secularism," and that Niebuhr was "as paradoxical as America itself: he was the most religious of secular figures and the most secular of religious ones." Fox, who has taught at Yale University and is now a history professor at Reed College in Oregon, later adds:

> The uniqueness of Reinhold Niebuhr lay in the energy and zeal with which he pursued

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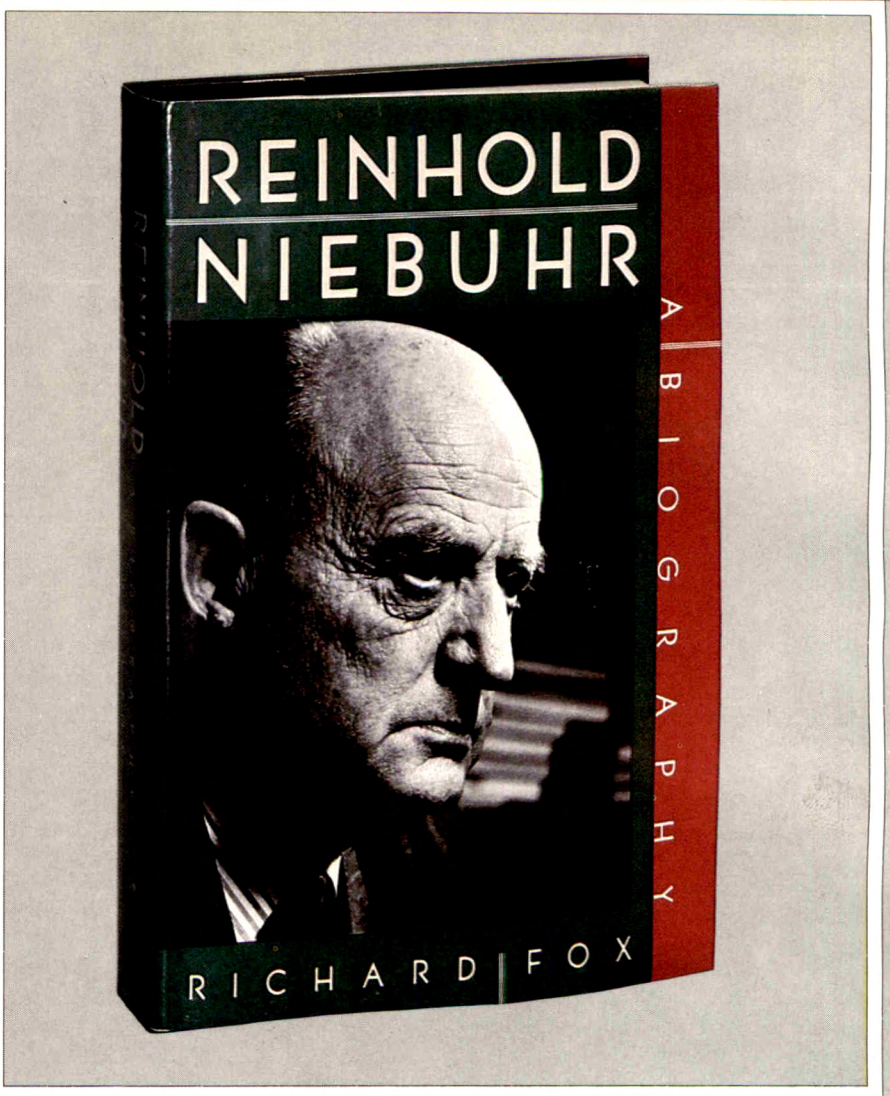
paradox and irony in both life and thought. The prophet-priest seeking influence and humility. The German-American Anglophile. The religious-secular preacher chastising the pious and chiding the worldly. The teacher-academic who distrusted the scholars and hoped for their respect. The liberal crusader against liberalism....The booming polemicist beset with hidden anxieties. Truth could only be expressed in paradox, he believed, and life lived as a succession of pregnant contradictions.

Not only Niebuhr's life but also his writings reflected that perception. Niebuhr was fond of pitting antithetical statements against each other, and his sermons offered "a constant dialectic of comfort and challenge." His "Sisyphean perspective," Fox maintains,

> was a unique and paradoxical mix: he was a religious modernist devoted to Biblical symbols; a political democrat infatuated with [Edmund] Burkean traditionalism; a skeptical relativist committed...to the life of passionate belief and moral struggle. He was a thoroughgoing naturalist despite his contempt for what he called naturalism....he had equal contempt for religious supernaturalism, which he thought voided man's native capacities and expunged man's own responsibility for his fate.

Of the many paradoxes of Niebuhr's life, none is more familiar than the incongruity between his neo-orthodox religious beliefs and his liberal politics, an apparent mismatch that Fox recognizes but does not fully explain. He was the scourge of sentimentalists who thought that one could create a new Jerusalem through political effort. The vice-chairman of the U.S. Liberal Party, the founding father of Americans for Democratic Action,



***Reinhold Niebuhr* by Richard Fox**

Robert A. Grove

Niebuhr upbraided the "foolish children of light" for failing to acknowledge the "fragmentary and broken character of all historic achievements."

A man of the cloth who had once pledged to follow war no more, Niebuhr in the 1940s sought to persuade liberals to jettison the idealism inherited from Woodrow Wilson for a tough-minded realism. His message could not have been more timely. A generation that had seen the land of Goethe and Bach give birth to Dachau, and the promise of progress through reason and the scientific method culminate in Hiroshima, could readily appreciate both the conception of paradox and the advisability of lowered expectations. It was open, too, to Niebuhr's admonition that "in a sinful human world" where evil was inescapable, evil had to be resisted, and his insistence that, with full knowledge of one's own nation's imperfections, one had to overcome squeamishness about the exercise of military power. To be sure, as Fox emphasizes, Niebuhr was never a single-minded advocate of crass *realpolitik*. He saw flaws in the American system and cautioned against Yankee self-righteousness.

Unlike his fellow theologians with whom he enlisted in good causes, Niebuhr expressed contempt for the view that mankind would one day achieve a community of love. He offered a much more astringent doctrine:

"Happy are they that mourn. The more spiritual power increases the more pain increases. The capacity to love also produces the capacity to grieve. Peculiar paradox....If your conscience is quick and active, it will cause you many an anxious moment."

Niebuhr provided cold comfort to those seeking some kind of cosmic assurance. "I have not the slightest interest in the empty tomb or physical resurrection," he said. He made his point even more bluntly to a friend: "I do not believe in individual immortality." He did not think that there was any "special Providence," and was convinced that if a mother with a son in the Korean War prayed to God hoping for divine intervention in her child's behalf, she did so in vain. Clearly, this was a creed with limited appeal.

Niebuhr delivered this message, though, in a manner that could be remarkably compelling—both in works such as *The Nature and Destiny of Man* and *The Children of Light and the Children of Darkness* and in his electrifying sermons. Fox conveys vividly what audiences witnessed during the years when "Reinie" was the star of the college-pulpit circuit. "One did not merely listen to Niebuhr: one watched him strut, gyrate, jerk, bend and quake."

Fox's search for "the historical Reinhold," who could give such sermons and write with such penetration, has left him with an abiding admiration for his subject. He calls *Moral Man and Immoral Society* "a book of uncommon brilliance"; defends *The Irony of American History* against its critics; describes *The Self and the Dramas of History* as "a phenomenal achievement for a man suffering serious physical and emotional ills"; and asserts that Niebuhr "profoundly influenced" the Reverend Martin Luther King Jr. perhaps even more than Gandhi did. Usually laudably restrained and evenhanded in his evaluation, Fox goes so far at one point as to say, "The 20th-century Christian church was shaken to its foundations by his piercing voice. So were the secular organizations of often agnostic liberals who flocked to him for inspiration."

Yet Fox pays at least as much, perhaps even more, attention to Niebuhr's shortcomings. He speaks of the "elegant tendentiousness" of the first article Niebuhr ever published in a national journal and he is no easier on some of the later writings. Fox also accuses Niebuhr of advancing "disingenuous" arguments, caricaturing the views of his opponents, failing to credit people with ideas he borrowed from them and indulging in a "casuistic flip-flop" to justify a self-serving career choice. He notes, too, that although Niebuhr professed to regard the humble village parson as an exemplary model, in the Detroit parish where he served for many years he was himself an empire-builder. He makes clear, furthermore, that Niebuhr preferred the company of movers and shakers in distant cities to that of his own parishioners.

In truth, the Reinhold Niebuhr who emerges from these pages is not very endearing. As a young man, he seemed preternaturally old. He gave little of himself to his wife and children. Niebuhr exaggerated when he said that he was a "dreadful father," but not by much. The German-émigré theologian Paul Tillich, appalled by his colleague's indifference to the beauty of nature, concluded that Ernest Jones's characterization of Freud was no less apposite to Niebuhr: "someone whose instincts were far more powerful than those of the average man, but whose repressions were even more potent."

His religion gave him neither solace nor equanimity. Niebuhr, Fox writes, was a man "always on the run, suitcase packed, in dread of passivity," who "spoke as one possessed, driven—not just in church, but with friends, in meetings, in the classroom."

Fox's biography is not without its own irony and paradox. Well-crafted, based on imaginative and persevering scholarship, it does its subject proud. Though Fox says that his protagonist is "not a man for all seasons," he intimates that Niebuhr is a man for the ages. ♦

FILM

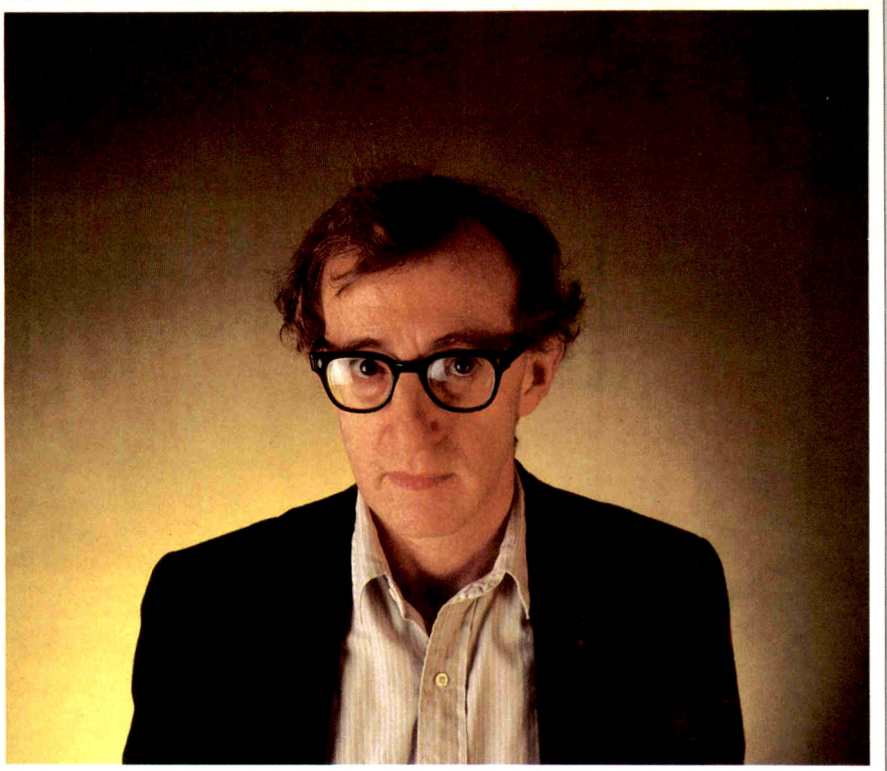
Three Sisters

By David Edelstein
From Rolling Stone

In his masterful new comedy, *Hannah and Her Sisters*, Woody Allen plays Mickey Sachs, "the hypochondriac," a gag writer obsessed with his body breaking down; he'll go racing to the doctor if there's a spot on his shirt. One day, after a jaunty battery of tests, the X-rays show something on his brain, and quickly the game is not so much fun. The sight of Woody with his head sliding into a brain scanner is queer and unnerving; and once liberated, he spends the rest of the film in a desperate search for meaning. If there's no God, he moans, and we're all going to die, then what's the point of living? Symbolically, Mickey abandons comedy—he's tired of disorder, anarchy, irreverence. The man needs *structure*. His quest is the most solemn and momentous a person can undertake, and it is also wildly funny—he's not going to make a good Catholic, no matter how hard he tries.

Allen's Mickey stays on the sidelines in *Hannah*, but he throws the other plots into relief: he whines the movie's underlying questions so the rest of the cast won't have to. The other characters—Mickey's ex-wife, Hannah (Mia Farrow), a celebrated actress on hiatus to raise a family; her husband, Elliot (Michael Caine); and her sisters, Holly (Dianne Wiest) and Lee (Barbara Hershey)—don't talk about their terror of not mattering: they just act it out. The paunchy financial adviser Elliot, blessed with a lovely and

David Edelstein is a film critic for The Village Voice.



Woody Allen

nurturing wife, develops a mad obsession with her nubile young sister Lee, who guiltily but hungrily responds. You sense that, faced with order and affection for the first time in his life, Elliot feels compelled to find problems. And Holly, a failed actress with a titanic inferiority complex, goes looking for love in all the wrong places. But the sisters have what Mickey doesn't: a foundation. The movie begins and ends with toasty, bustling Thanksgiving dinners at Hannah's apartment, in which the family marks the passing years with food, stories and songs around the piano. No one mentions death, but the clock is ticking anyway, as it ticks in the lyrical, exuberant and heartbreaking plays of Anton Chekhov.

Hannah and Her Sisters is not a Manhattan rewrite of Chekhov's *Three Sisters*, but it's Chekhovian in dazzling and unexpected ways. It's busy, buoyant and alive, full of grand gestures and drifting, anxious people. The subplots crisscross and flow into one another, each with its own motif. *Hannah* sails from bathos to farce, despair to mirth, and behind all the jokes, quarrels and crises is a steady ache, a fear of meaninglessness that drives each character to the edge of tragedy. And then—because this is, unashamedly, a comedy—their author pulls them back. Allen, who has edged away from comedy for almost 10 years, comes marching home at last.

Hannah and Her Sisters is the summation of—and, in a sense, the justification for—every Woody Allen film since *Annie Hall*. As in *Manhattan*, Allen plays ephemeral human silliness off enduring works of art—people flirt over architecture, sip wine at the opera and seduce over poetry. But in *Hannah*, Allen doesn't denounce his characters: he's fascinated by the role art plays in life, by the way people use it like smoke signals to say what they can't.

There isn't much they *do* know how to say, and that's what Allen has really learned: he doesn't make them articulate spokesmen for their own addled feelings; he's inside their heads here. Holly doesn't babble about her doubts and insecurities, but we observe them from how she dresses, from her stiff outfits and nervous arrangement of too many baubles. Dianne Wiest gives an exquisite, heartrending performance: the camera adores her dark button eyes and puffed-out lips, which seem cracked and swollen by emotion. It's a lovely, brokenhearted-clown face, a face that shows its hurts, so that each blow to her ego seems a sad confirmation of what she already knows. Watching her, you see a body that can't contain its spirit: she's always spilling out of herself.

There's another major performance. In *The Purple Rose of Cairo*, Mia Farrow was radiant and funny but too much the Chaplinesque innocent, the windup waif. As Hannah, she is perfect. She's plusher now, the model homemaker, and, as with the idiot in Dostoevsky's novel, her niceness is the source of all contention: her sisters resent her beauty, success and self-sufficiency, while her husband craves a woman to take care of. But Farrow shows us the fragility behind the strength—how her happiness depends on keeping everyone *else* happy. Her masklike beauty has never seemed more vulnerable. After a bitter quarrel with her husband, she cries, "*I have enormous needs*," and in the close-up of her face as he departs, the mask begins to melt—there's a quiver beneath the features that, in context, is like an earthquake.

While the three sisters tryst, audition and struggle to work out their feelings, Allen's Mickey cries for answers. He finds none, as you'd expect, but he makes a separate peace. After attempting to shoot himself, he wanders into a theater showing the Marx Brothers' movie *Duck Soup* and discovers the ultimate sanity—or, at least, the ultimate tonic. Art isn't just an escape, as it is in *Purple Rose*, but a prescription, a design for living: it can give you the strength to bound back into the world. He doesn't close this movie with a shrug. His conclusions free him up for a joyful ending brimming with sentiment. The final shot—of two of the most miserable characters in movies caressing each other passionately—is undiluted rapture: the triumph of an artist who has found magic on earth.

Woody Allen is a rare figure in American films—an artist who, early

on, won so much goodwill from his public that it has continued to turn out for even his most radical departures. He has earned the right to make modestly budgeted movies without studio interference, and he has earned the right to fail, which artists need if they're to grow. He has done this by insulating himself from the trappings of celebrity, by working incessantly and by pushing himself to transcend his limitations. That requires more courage (and maybe more misery) than most of us can imagine. In Allen's case, it meant killing the best of himself to find himself, rejecting his wit to discover his comedy. ♦

MEDICINE

Doctors as Students

Kenneth M. Ludmerer, *Learning to Heal: The Development of American Medical Education*. Basic Books. 346 pp.

By Sherman Mellinkoff
From the Los Angeles Times

During most of this century, the quality of American medical education has been and remains excellent. But in the middle of the 19th century, medical education in the United States was largely a shambles. The ignorance of most physicians during the Civil War contributed to an appalling death rate among the wounded and to the overall loss of about 375,000 soldiers' lives from disease alone during the four years when about 160,000 died in battle. Long after French doctors abandoned such harmful "remedies," calomel was commonly prescribed by American military physicians, adding to natural illness, diarrhea and mercury poisoning. Calomel and tartar emetic (another poison) were banned by a brave Union surgeon-general, William Alexander Hammond, who drew a court-martial from the U.S. Army and condemnation from the American Medical Association.

As late as 1871, Charles Eliot, president of Harvard University, proposed that written examinations be required for graduation from Harvard Medical School. Harvard professor of surgery Henry Jacob Bigelow objected on the grounds that more than half of his students could barely write.

How did American medical education evolve from so shabby a state to the world's best in less than a century? The answer is by no means simple, nor is it widely understood, but it is provided with accuracy, clarity and the descriptive skill of a first-rate storyteller by Kenneth M. Ludmerer in *Learning to Heal*.

Ludmerer teaches history at Washington University in St. Louis and internal medicine at its school of medicine. As a historian who is also a respected practicing physician, Ludmerer brings understanding and insight to his analysis of the development of American medical education. He identifies the 19th-century origins of medical educational reform in the influence of Americans who studied in Europe, where both sagacious bedside medicine and revolutionary scientific discovery were relatively advanced.

In the late 1800s one of those Americans, William Henry Welch, became the founding professor of pathology at Johns Hopkins University, the first truly great medical school in the United States. Welch alone in U.S. history was simultaneously president of the American Medical Association and a member of the National Academy of Sciences. He discovered the bacillus that causes gas gangrene, and was an inspiring teacher. Simon Flexner, who discovered one of the causes of bacillary dysentery, was Welch's student and younger colleague at Johns Hopkins, and subsequently director of the Rockefeller Institute in New York, which also had a profound effect upon medical education.

Flexner's brother Abraham, a Johns Hopkins graduate but neither a physician nor a biologist, authored the famous Flexner Report, financed by the Carnegie Foundation. This report was in part an astute analysis of the principles of excellent-to-good medical education existing in a handful of places in 1910 and also a dramatic exposé of the mediocre-to-disgraceful medical education that was far more common in the United States at that time.

The Flexner Report helped to advance educational reform, but has quite mistakenly been widely perceived as the blueprint for the modern medical school. This misconception periodically rouses cries for a "new Flexner Report" to solve complex difficulties continually arising in medical education as a consequence of scientific discovery, technological advances and dilemmas, and demographic, social and economic change. Solutions to such complicated, multifaceted problems in medical education are more likely to be found by critical thinkers working in the field than to be formulated by an *ad hoc* commission or another Flexner—to spring, as it were, full grown like Athena from the head of Zeus.

Physicians, university educators, philanthropists, scientists, engineers, economists, political scientists, sociologists, philosophers, lawyers, hospital administrators and countless others share concerns about medical education, if for no other reason than that sooner or later all of us need a doctor. For all directly or indirectly interested in medical education—whether as participants, planners, critics, chroniclers or simply as a result of intellectual curiosity—Kenneth Ludmerer's book should be a good place to begin. His explorations illuminate the disparate influences upon American medical education—from worst to best. Implicit in this story, fascinating in itself, are many lessons to be learned if the future of American medical education is to be marked by progress rather than a repetition of past errors or the passive acceptance of decay. ♦

Sherman Mellinkoff is dean of the University of California at Los Angeles Medical School.

ART

A World of Symbols

Paul Rand, *Paul Rand: A Designer's Art*. Yale University Press. 239 pp.

By Alan Fern
From The New York Times Book Review

In our built environment and our civilization of manufactured objects, every product, every printed page, every urban corner has been designed, sometimes badly, sometimes well. Yet we have few opportunities to reflect on the ways designers work and to celebrate their accomplishments. Our painters, sculptors and architects are household names, but few people, apart from the design community, are aware of the identities and the qualities of the principal shapers of the forms with which we are surrounded. Fewer still have an understanding of the thought processes or the intellectual preoccupations of the major designers of our time.

The curse of designers is that they remain anonymous to those who use (and may even admire) their work. Many people recognize the characteristic logotype of the IBM Corporation, with its blocky letters rendered in horizontal lines of blue or gray; the underlined *W* that appears on every Westinghouse product; or the refined, multicolored stenciled letter forms of the El Producto cigar box. But the name of the designer who created them is known primarily to his colleagues. *Paul Rand: A Designer's Art* admirably serves to introduce us to the mind and the work of the originator of these and many other memorable graphic images, and to a man who is one of the most influential and fascinating designers of our time.

IBM package design
Fred Schenck, Courtesy IBM Corp.

Rand has uncommon taste and sensibility, and his work is as personal an expression as the painting of Miró or Matisse, and for some of the same reasons. Born in New York City in 1914, Rand studied at the Pratt Institute, the Parsons School of Design and the Art Students League under painter George Grosz. At the age of 23 he became art director for the *Esquire* magazine company and later for the Weintraub Advertising Agency. He has taught at the Pratt Institute and Cooper Union in New York, and from 1956 to 1969 he was professor of graphic design at Yale University. Rand has received the highest awards given to designers on both sides of the Atlantic Ocean. And, beyond all that, he is an author as well as illustrator of books for children.

Professionally, Rand is a graphic designer, which is to say he creates work that is to be printed. Unlike the work of the painter, this process involves the collaboration of many technicians, so the designer must work in such a way that his conception will survive the translation from drawing boards to printed page or package. Moreover, unlike other artists, the graphic designer is obliged to communicate with others to succeed. As Rand puts it, "Because graphic design, in the end, deals with the spectator, and because it is the goal of the designer to be persuasive or at least

Alan Fern is director of the National Portrait Gallery in Washington, D.C., and a frequent writer on the history of the graphic arts.

informative, it follows that the designer's problems are twofold: to anticipate the spectator's reactions and to meet his own esthetic needs."

At the very opening of his book, Rand cites the Renaissance art historian Vasari's definition of design—"the animating principle of all creative processes." Rand puts to rest the common misconception that design is simply applied ornament, adornment enhancing some useful object. It is far more than that; for him, graphic design "is essentially about visual relationships—providing meaning to a mass of unrelated needs, ideas, words and pictures. It is the designer's job to select and fit this material together—and make it interesting."

Rand has usually succeeded in being far more than "interesting." His work can be arresting, deliciously witty or childishly (and deceptively) direct. He has educated a generation of clients in the necessity for better graphic communication, and this cannot always have been easy. He explains that "as the material furnished him is often inadequate, vague, uninteresting or otherwise unsuitable for visual interpretation, the designer's task is to restate the problem."

In his book Rand has assembled and expanded on a number of the brief essays he has published over the years, and he has illustrated them with examples from his own work and from the work of others he admires. Much of his writing has appeared in out-of-the-way places and has not been readily available to the general reader, so this book is valuable on that score alone. But more to the point, Rand has chosen his illustrations brilliantly to enlarge upon the points made in the essays, and to show how he has given form to the ideas enunciated in his texts.

This is not a how-to-do-it book: the fundamentals of the craft are left for others to describe. Instead, we are exposed to some of the elements Rand feels are fundamental to the kind of work he does—an understanding of the effective qualities of letter forms, a sensitivity to the power of symbols (even simple ones like the circle and the cross), a respect for pattern, a delight in ambiguity and comprehension of space as a major element in design. For Rand, these are the basic tools of his trade, as the musical scale is to the work of the composer.

Beyond the elegant application of these fundamentals, Rand's work is distinguished for its ready wit and richness of reference. A joke is often spoiled when it is explained, but Rand is sufficiently terse to leave it to his readers to find the fun in his designs for themselves, sensitized by a few well-chosen phrases and carefully selected references. Like so many superb designers, Rand is a man of boundless curiosity. What attracts him may not be obvious, or impressive, to the rest of us; he has found stimulation in the forms of everyday household objects, Shaker door hinges, books about the Russian constructivists or postcard reproductions of sculptured figures. These he transforms, with his unerring sense of proportion and scale, into printed pages that are beguiling in their freshness and clarity.

Rand describes his work with the same precision, economy and passion he displays in his graphic designs, and he lets us understand the nature of his relationships to his clients, his audience and his art. He is an unapologetic commercial artist, having devoted a career to the making of advertisements, as well as to the designing of books and posters and to the education of fledgling designers. But finally, Rand sees himself in a dialogue with his audience at a more fundamental level. He writes, "It is in symbolic, visual terms that the designer ultimately realizes his perceptions and experiences; and it is in a world of symbols that man lives." That extra layer of meaning distinguishes Rand's work and makes him at his best an artist of exceptional distinction and power. ♦

TELEVISION

Building Dreams

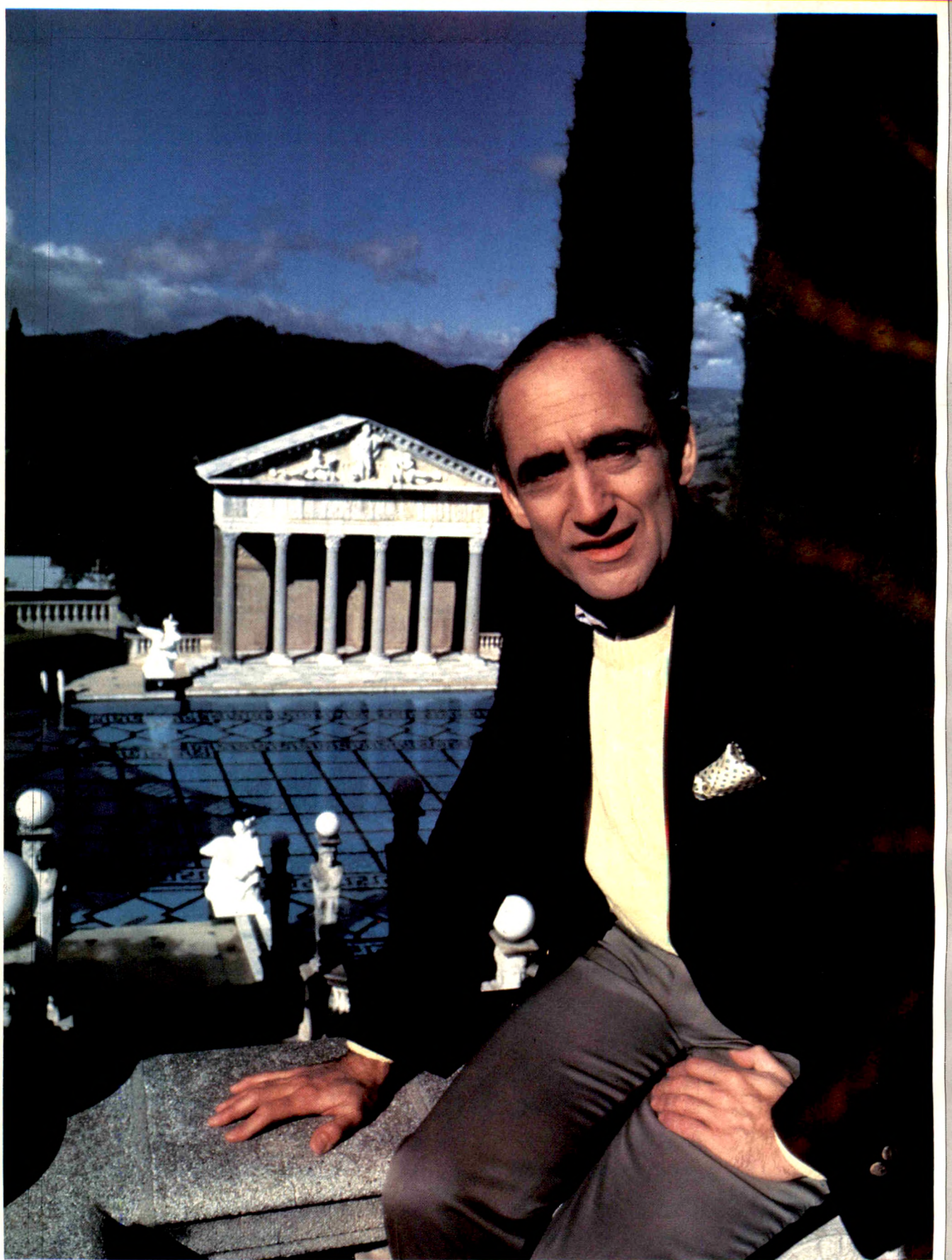
By Edward Gunts
From The Baltimore Sun

"Architecture is a storytelling or communicative art," architect Robert A.M. Stern once said. "Every work of architecture has a lesson in it." As host and narrator of a new Public Broadcasting Service series on American architecture, Stern shows he can tell quite a story himself. In the series, "Pride of Place: Building the American Dream," Stern takes viewers on an architectural journey across America. He travels to more than 100 locations to examine the many ways America's architecture reflects the nation's civilization—including its art, history, technology and social and political philosophies.

The buildings featured in the series are the kinds of places architecture students learn about early in their academic training—from Thomas Jefferson's Monticello and Mount Vernon, home of George Washington, in Virginia to Paul Rudolph's 1963 Art and Architecture Building at Yale University and Philip Johnson's 1949 Glass House in Connecticut. The series provides as good an armchair survey of the best in American architecture as a person can get without enrolling in architecture school.

But "Pride of Place" is not so much a travelogue or a history course as it is a visual essay about the ways buildings "speak" to us—and what Stern believes they are saying. That personal view of architecture provides the story line that makes the series more than a history course. If anything, it is closer to a

Edward Gunts reports about architecture for The Baltimore Sun.



Robert Stern at San Simeon

Courtesy Frank Goodman Associates

current-events lesson.

Stern is a practicing architect, author and professor at Columbia University. He is one of the leading proponents of the "postmodernist" movement, a design philosophy that attempts to move beyond the International Style glass boxes popular in the 1950s and '60s and toward buildings that reflect more of a culture's heritage and aspirations. The postmodernists believe that architecture should be "a conversation between the past and the present," as Stern puts it, with colors and forms and spaces that provide "a dialogue across time."

Although "Pride of Place" is ostensibly a search for what makes American architecture distinct, Stern has organized the series as a way of examining key issues behind the current stylistic debate about today's buildings, which have been divided into different categories. Yet Stern does not get bogged down in semantics. "The critical issue today," he says in the first program, "is the relation of new buildings to the past." In architectural circles, this is one of the most widely debated topics—and one reason "Pride of Place" is a significant architectural and television event. With the profession undergoing sweeping philosophical changes—and the public more interested than ever about new buildings—the series could not be more timely.

Stern is hardly objective and does not pretend to be—which makes him an interesting host. But his polemics never overwhelm the program, because there are many other levels on which it can be viewed. The photography alone makes the series a must for architectural and history buffs, who will be treated to rare footage of such landmarks as Frank Lloyd Wright's Wisconsin home, Taliesin North, and publisher William Randolph Hearst's California estate, San Simeon.

To help him tell his story, Stern has guests on each program who are as eloquent as the images are colorful. They occasionally interject opposing views, and their banter with the host provides some of the brightest moments of the series.

"All I wanted to do was do a better house than Mies [van der Rohe] was doing," Philip Johnson, widely regarded as the dean of American architecture, says of his classic Glass House.

"I don't think it's just a matter of Mies that you wanted to take on," Stern says. "I think you were taking on the whole history of architecture here."

"I think you're reading that into it," replies Johnson, clearly happy that Stern thought so.

Other segments of the series are organized to continue the discussion where the introductory program left off. Subjects include campus architecture, dream houses, the suburbs, resorts, building interiors, skyscrapers and "the garden and the grid"—a look at urban design.

One of the achievements of the series is the way it shows what an effective medium television can be as a tool for presenting architectural issues. More than newspapers, magazines or books, television is a visual medium, capable of transmitting the spatial experience of standing inside the dome of the U.S. Capitol or the pleasing order behind Thomas Jefferson's University of Virginia campus.

AT&T headquarters, New York City

The camera also conveniently conveys ideas that might otherwise take too long to explain. When critic Vincent Scully refers to Rudolph's Art and Architecture Building at Yale as a "brutalistic" structure with "corduroyed concrete that really hurts you when you get near to it," and the camera zooms in for a close shot, everyone can get a good sense of what he is talking about. The program also succeeds in capturing Stern's personality: outspoken, witty, opinionated—a scholarly dynamo who can be both insightful and cutting.

But one of the difficulties of producing a series such as "Pride of Place" is that the issues are so complicated and the level of discussion can get so esoteric that nuances of meaning and important viewpoints can easily get lost or glossed over. Although "Pride of Place" raises serious architectural issues, it also may leave viewers with overly simplistic or one-sided solutions. For instance, after listening to Stern praise Johnson's AT&T headquarters, which is distinguished from other buildings on the New York City skyline by a roof shaped like the top of a Chippendale secretary desk, viewers may get the impression that a building is praiseworthy if it has a slanted roof instead of a flat top. But there is far more to it than that, as the postmodernists would be the first to admit.

Still, the chief message comes across loud and clear. Given a choice between "less is more" and "less is a bore," Robert Stern isn't bashful about letting viewers know where he stands, and the series probably will do more to promote the postmodernist movement than a city full of Chippendale skyscrapers.

But the series is significant as far more than architectural propaganda. Viewers need not be fans of Stern or adherents of his design philosophy to appreciate the concerns he is voicing. For anyone interested in American architecture—and the rapid changes it is undergoing—few broadcasts confront the issues as directly or vividly as "Pride of Place." ♦

Index

Issues 1-4 (1986)

Index

Index

1 2

3 4